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The Effects of Early Intervention on the Cognitive and Social Development of Kindergarteners

Jennifer Foster Pope
University of Southern Mississippi

The University of Southern Mississippi

THE EFFECTS OF EARLY INTERVENTION ON THE COGNITIVE AND SOCIAL DEVELOPMENT OF KINDERGARTENERS

by

Jennifer Foster Pope

Abstract of a Dissertation
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
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ABSTRACT

THE EFFECTS OF EARLY INTERVENTION ON THE

COGNITIVE AND SOCIAL DEVELOPMENT

OF KINDERGARTENERS

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Research has, for years, linked early intervention with student achievement. Students coming from an appropriate developmental preschool program are at an advantage and are readily able to face the rigor of elementary school (Campbell & Ramey, 1994). This study investigated whether there were statistically significant relationships among preschool attendance, gender, free/reduced status, and ethnicity and the cognitive development of kindergarten students as measured by AIMSweb Progress Monitoring and Response to Intervention System. This study also investigated the relationship between social skills competence and the cognitive development of kindergarten students as measured by the School-age Social and Emotional Adaptive Skills Inventory.

The study was conducted over a nine month period initiating the efforts of approximately 19 teachers and four administrators in one coastal school district. The primary data for this study were obtained from 373 social skills inventories completed by kindergarten teachers in one school district. Multivariate analysis of covariance (MANCOVA) tests were conducted to identify statistically significant relationships between the literacy and numeracy averages of kindergarten students and preschool attendance, gender, free/reduced status and ethnicity. Multiple regression analyses were

conducted to determine if there was a statistical relationship between the social skills competence and the cognitive development of kindergarten students.

The results of the study revealed, through the MANCOVA tests, that socioeconomic status had a statistically significant effect on a kindergarten achievement. The study also revealed a significant relationship between kindergarten achievement and the ethnicity and preschool background of the student. The study did not reveal gender to have a statistically significant relationship with kindergarten achievement.

This study also revealed, through the multiple regression analyses, that social skills competence had a statistically significant effect on kindergarten achievement. The regression analyses revealed a strong relationship in the academic achievement of students who possessed a larger number of social skill traits as opposed to those who did not possess many social skill traits. From these analyses, it was concluded that social skills competence had a significant effect on kindergarten achievement.

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Approved:

Rose M. McNeese
Director

Richard Mohn

Gaylynn Parker

David E. Lee

Susan A. Siltanen
Dean of Graduate School

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DEDICATION

This dissertation is dedicated to my grandparents who are no longer here to share this special accomplishment with me. To my grandfather, Leroy Foster, a wise man who had a gift for seeing the good in every person he encountered. He was a man of unyielding faith who always put his family first. To my grandmother, Marie Ella Harkey, who had an enduring will to persevere and a wittiness about her that made everyone laugh and smile. To my grandfather, Dr. Ira Harkey, whose enthusiasm for learning encouraged me to follow my dream of pursuing my Doctorate. I know they are celebrating with me from heaven.

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Words cannot express the appreciation and love I have for my family and friends. Without them this journey would not have been possible. A special thank you goes to my husband, Billy, who supported and encouraged me from the beginning. He took on the family responsibilities and did what it took to make sure I accomplished my goals. Thanks also to my parents, Rex and Amelie Foster, who have always encouraged me to pursue my dreams and have been there to make sure my dreams became reality. Without them, I definitely would not be the person I am today. I would also like to acknowledge my children, Britney, Andrew, Kailen and Taylor, who have unselfishly given me time to work on my "paper" without too many complaints. A special thanks to my grandmother, Barbara Foster, who prays for me every night and who has always inspired me to be the best person that I can be. Thank you to my sister, Stacy McArthur, for believing in me and helping me stay focused, and to my close friends, Carol Viator and Angela Pickich, for their encouragement and constant reassurance. Finally, I would like to express my appreciation to the Ocean Springs School District and Oak Park Elementary for giving me the opportunity to work with such compassionate, dedicated people.

TABLE OF CONTENTS

LIST OF TABLES

Table

CHAPTER I

INTRODUCTION

Chapter I introduces the study and provides a statement of the problem and a purpose for the study. Background information is given to establish the need for this study. The research questions, the delimitations, and assumptions of the study are addressed in this chapter. Definitions of related terms are given to assist the reader, and the chapter will conclude with a justification for the study.

Improving achievement and providing quality instruction for all students are two critical challenges educators face today. The No Child Left Behind Act (NCLB) of 2001 challenges states and school districts to strengthen their efforts to improve the academic achievement of students considered at risk for failure and to ensure that all students have access to a quality education. As a result, the pressure is on to make sure all students, including Limited English Proficient (LEP) students, reach high standards of academic proficiency in mathematics and reading/language arts, and that all students graduate from high school (H. Res. 1, 2002). As former President George W. Bush (2001) stated,

> The quality of our public schools directly affects us all as parents, as students, and as citizens. Yet too many children in America are segregated by low expectations, illiteracy, and self-doubt. In a constantly changing world that is demanding increasingly complex skills from its workforce, children are literally being left behind (¶ 2).

In order for the demands of NCLB to be satisfied, educators must begin reform in the early childhood years. Advocates of preschool education believe that early intervention is an investment that pays off in the long term by reducing the number of

children who perform poorly in school (Kolb, 2003). There are groups of children who are at greater risk of falling behind in school. These include impoverished children, children with disabilities, and children whose primary language is not English (Ziglar & Finn-Stevenson, 2007). Current educational practices in early elementary school generally allow children to proceed with academic tasks at their own rate. It is not until students have failed to master the required skills, and they are falling behind their age-appropriate peers, that formal interventions are introduced. By then, the student is already working below grade level. In an era of increased curriculum realignment and high stakes testing, schools cannot afford to "wait" for students to fail. Early intervention is a proactive initiative that enables the student to acquire the skills needed for future academic success. Rosa Smith (2004) summed it up by stating, "To close the achievement gaps in the United States, we must pay attention to our youngest citizens" (p. 38).

There have been numerous recorded studies on early intervention programs and their effects on childhood development. Some of the studies have even followed the students throughout their entire schooling and into adulthood. One such longitudinal study was the High/Scope Perry Preschool Project. The study began in 1962 and was conducted by the High/Scope Educational Research Foundation (Parks, 2000). This project was developed to offer high-quality early intervention opportunities for at-risk 3- and 4-year olds. The foundation followed the children through adolescence and into adulthood. Although the project began as an educational initiative, many other benefits were noted. Overall, the program group portrayed higher rates of appropriate behavior, academic achievement, employment, income, and overall stability as compared with the

control group (Parks). This study and other similar studies demonstrate the importance of early intervention and its role in educating young at-risk children and preventing crime and juvenile delinquency. "The results of this study have many useful implications for policy, practice and ongoing research" (Parks, p. 2).

Purpose of Study

The purpose of this study was to conduct action research on the effects of preschool programs on kindergarten achievement by investigating whether there was a significant difference in the literacy and numeracy achievement skills of students who attended a preschool program and the achievement levels of students who did not attend a program as measured by the AIMSweb Progress Monitoring and Early Intervention System. The study also compared the achievement levels of kindergarteners who attended a public preschool program, a private preschool program, or no program at all. The study assessed if there was a significant difference between the literacy and numeracy skills of boys and girls who attended preschool, both public and private. The study determined if there was a significant difference between the literacy and numeracy skills of students classified as minority and those classified as nonminority who attended preschool. The study assessed if there was a difference between the literacy and numeracy skills of students living below the poverty level who attended preschool and the students living above poverty level who attended preschool. The study determined if there was a relationship between the academic achievement and the social skill competence of kindergarten students who attended preschool. The study followed The University of Southern Mississippi protocol in its organizational structure. Chapter II is a review of literature that pertains to specific areas of interest addressed in the study, as

well as the theoretical framework for the study. Chapter III describes the methodology, identifies the population, defines the procedures used, the statistical tests that were conducted, the instrument that was used, and the instrument validation. Chapter IV presents the results and data analysis of the statistical tests. Chapter V discusses the findings, conclusions, and any implications for policy, action, and future research.

Statement of the Problem

The achievement gap at the beginning of kindergarten among children who have attended preschool and those who have not is widening. The difference hardly ever goes away. It continues in reading and math achievement and eventually into the work force (Ashford, 2007; Poppe & Clothier, 2005). If we want all children to succeed in school, we must make sure that all children come to school with the readiness skills needed to be a successful kindergartener (Smith, 2004). It is important for our schools to provide opportunities for all children to attend a preschool that prepares them for what is expected of them in kindergarten. As child psychologist, Dr. David Elkind (2001) stated,

> If we want all of our children to be the best that they can be, we must recognize that education is about them, not us. If we do what is best for children, we will give them and their parents the developmentally appropriate, high-quality, affordable, and accessible early-childhood they both need and deserve. (p. 15)

The early years are crucial to the development of not only academic skills, but important personal/social, adaptive, motor, and communication skills as well. According to Ziglar and Finn-Stevenson (2007), "The majority of children are spending a significant part of their early development in child care settings that are not always conducive to optimal growth and school readiness" (p. 176). As a result, there is increasing

recognition that preschool education and early literacy development are imperative for improving later academic proficiency.

"There have been many studies conducted that indicate that children who face environmental hardships such as poverty, especially early in life, are at risk for developmental delays and eventual academic failure" (Ziglar & Finn-Stevenson, 2007, p. 176). According to Steve Barnett from the National Institute for Early Education Research, cited in Poppe and Clothier (2005), "Kids living in poverty are 18 months behind the average kid when they start kindergarten. This is an incredible amount of time for a school to catch up" (p. 26).

Background

Preceding the mandates of No Child Left Behind was Goals 2000: Educate America Act of 1994 (P.L. 103-227). The enactment of Goals 2000, which consisted of eight goals, was the beginning of a new era in school reform that would move the nation toward an educational system based on high standards, equity, and excellence for all American students. Goal number one stated that by the year 2000, all children in America will enter school ready to learn (P.L. 103-227). This initiated an increased recognition that all children should have access to high-quality and developmentally appropriate preschool programs that prepare children for school.

Early childhood is an ongoing field of study in the United States, but it is not a new concept. "Since the 1930s the federal government has supported programs for 4-year-old children. The programs included Women's Prison Association (WPA) nurseries during the depression, day schools during World War II and most recently, Head Start (Bloch, Seward, & Seidlinger, 2001, p.11). The baby boom era following WWII

increased the number of children enrolling in public school classrooms. Emphasis has been placed on 5-year-old students entering kindergarten, therefore, denying younger children access to a publicly funded early education program. Only students who were born in affluent families attended a private preschool and were given the benefit of getting a "jumpstart" on educational concepts (Bloch, Seward, & Seidlinger).

The challenge has been for kindergarten teachers to meet the needs of children who are diverse both socio-economically and developmentally. Some children entering kindergarten have already demonstrated mastery in early literacy and numeracy, while others have never even been exposed to the concepts. To ensure students are provided with a quality education, teachers must maintain enthusiasm and differentiate instructional techniques to promote the growth of children (Ramey & Ramey, 2004). Kindergarten learning objectives are now the learning objectives that were once required of first graders. Children entering kindergarten are now expected to possess the prerequisite skills to begin reading and the social skills necessary to follow school rules and routines. This new concept of "pushing down the curriculum" presents increasing challenges for teachers, especially when students are coming to school without the necessary readiness skills (Bracey, 2000; Kagan, 1990; Rimm-Kaufman, Grimm, Curby, Nathanson, & Brock, 2009).

The National Association for the Education of Young Children (NAEYC, 1995) position statement on early childhood education states that "a high quality early childhood program should provide a safe and nurturing environment that promotes the physical, social, emotional, and cognitive development of young children while responding to the needs of the family" (p. 1).

Research Questions

The study determined whether preschool programs had an effect on the overall achievement levels of kindergarteners. The study determined whether there was a significant difference in the literacy and numeracy skills of students who attended a public preschool, a private preschool, or no preschool at all. The study determined whether there was a significant difference in the literacy and numeracy skills of kindergarten boys and girls who attended preschool. The study determined whether there was a significant difference in the literacy and numeracy skills of minority and non-minority kindergarten students who attended preschool. In addition, the study determined whether there was a significant difference in the literacy and numeracy skills of kindergarten students living below the poverty level who attended preschool and kindergarten students living above poverty level who did not attend preschool. Finally, the study determined whether there was a connection between academic achievement and the social competence of kindergarten students who attended preschool. The study examined the following research questions:

1. Is there a significant difference in the early literacy and early numeracy averages of kindergarten students who attended a public preschool program and kindergarten students who attended a private preschool program as identified on the AIMSweb Progress Monitoring and Response to Intervention System?
2. Is there a significant difference in the early literacy and early numeracy averages of kindergarten students who attended a preschool program (private and/or public) and kindergarten students who attended no preschool program as

identified on the AIMSweb Progress Monitoring and Response to Intervention System?

3. Is there a significant difference in the early literacy and early numeracy averages of male and female kindergarten students who attended a preschool program (private and/or public) as identified on the AIMSweb Progress Monitoring and Response to Intervention System?

4. Is there a significant difference in the early literacy and early numeracy averages of minority kindergarten students who attended a preschool program (private or public) and non-minority kindergarten students who attended a preschool program as identified on the AIMSweb Progress Monitoring and Response to Intervention System?

5. Is there a significant difference in the early literacy and early numeracy averages of children living below the poverty level as recorded by free/reduced lunch status who attended a preschool program (private or public) and children living above the poverty level who attended preschool (private or public) as identified on the AIMSweb Progress Monitoring and Response to Intervention System?

6. Is there a relationship between the early literacy and early numeracy averages and the social competence of kindergarten students who attended a preschool program (private or public) as identified on the School-Age Social & Emotional Adaptive Skills Inventory?

Delimitations

This study was confined to kindergarten students in three elementary schools located in one school district in a coastal region during the 2009-2010 school year. The researcher focused on the literacy and numeracy development and social skills development of the kindergarteners enrolled in this school district. Data from AIMSweb Progress Monitoring and Response to Intervention System was collected to determine the literacy and numeracy development in the children. At the end of the school year, kindergarten teachers within the district completed a School-Age Social and Emotional Adaptive Skills Checklist on each kindergarten student to determine social competence (see Appendix A). The study was limited to this specific population and therefore, generalizations should be restricted to populations with similar demographics and teacher characteristics.

Assumptions

The researcher assumed that the schoolwide assessment teams at each school followed the directions and were no bias when administering the AIMSweb benchmark assessments to the students. The researcher also assumed that the kindergarten teachers completed the social skills checklist with integrity and to the best of their ability.

Definitions of Terms

The following definitions provide meaning, in some instances unique to this research context, for terms used in this study.

Advantaged - children whose home background can provide the resources necessary to prepare them for an education.

At-risk Student - a student who is a potential low achiever within the school setting as a result of environmental hardships and limited experiences.

Background Knowledge - a person's existing knowledge about a topic.

Developmentally appropriate - implementing teaching strategies that are based on how and when children learn best.

Disadvantaged - children whose home background does not prepare them as well as other children for an education which largely reflects middle-class values (Edwards, 1974).

Early intervention - techniques that address cognitive development and low achievement before school failure occurs.

Early learning standards - documents that articulate expectations for children's growth and development prior to kindergarten entry (Kagan & Scott-Little, 2004).

Early Literacy - includes all the activities involved in speaking, listening, reading, writing, and appreciating both spoken and written language (Armbruster, Lehr, & Osborn, 2006).

Free/Reduced - children whose families qualify for free/reduced meals under the Richard B. Russell National School Lunch Act.

Minority - non-white students.

Peer acceptance - the degree to which an individual child is liked or disliked by children in his age group.

Phonemes- the smallest units constituting spoken language (Armbruster et al., 2006).

Phonemic awareness - the ability to focus on and manipulate phonemes in spoken words (Senge, Cambron-McCabe, Lucas, Smith, Dutton, & Kleiner, 2000).

Poverty level - families who qualify for free/reduced meals under the Richard B. Russell National School Lunch Act.

Readiness - state of early development that enables an individual child to engage in and benefit from early learning experiences.

Response to Intervention - process used by school districts to ensure students get the academic or behavioral intervention needed for success.

Social Competence - refers to a person's ability to get along with other people and follow the rules outlined by authority.

Title I - the section of the Elementary and Secondary Education Act of 1965 that focuses on improving the academic achievement of the disadvantaged.

Justifications

Decades of published research has confirmed that early childhood education is essential in giving children the foundation and capacity to learn. Unfortunately, however, those are the years that get the least attention when it comes to educational reform. More money is spent on trying to intervene with students that are falling behind or on students identified with a learning disability than on educating children from the beginning when it matters most. Many children are not given the opportunity to attend high quality preschool programs before entering kindergarten (Lubeck, 1989).

There are currently 38 states that provide and fund early intervention programs (Barnett, Epstein, Friedman, Boyd, & Hustedt, 2008). Presently, the state of Mississippi does not have state-mandated preschools. However, the initiative has been considered for

legislation. Fortunately, there are several school districts throughout the state that recognize the importance of early intervention and have implemented and funded such programs. The school district involved in this research study has done just that. The district piloted a 4-year-old preschool program during the 2008-2009 and 2009-2010 school years. This program offered a free-educational opportunity for children.

The information obtained from this study provided data in determining the program's effectiveness. The district used this study as one of the determining factors when decisions were made concerning the continuation of its preschool program. This research has the potential to positively impact the future of many 4-year-olds throughout the community.

Summary

Improving education is a concept that has never been left alone. Federal education policy, contained mainly in the Elementary and Secondary Education Act of 1965, was revised and renamed the No Child Left Behind Act of 2001 (H. Res. 1, 2002). The revision helped to identify the achievement gaps among students, and schools were then mandated to move to ensure that all children have a fair, equal, and significant opportunity for a quality education (Ziglar, & Finn-Stevenson, 2007). However, for No Child Left Behind to succeed, early childhood advocates believe that educators must acknowledge the importance of not only the academics, but other developmental skills (e.g., physical, social-emotional) that could possibly have an impact on later school performance.

The first goal in The National Education Goals stated that by the year 2000, all children in America would come to school ready to learn. The objectives for this goal

state: all children would have access to high-quality and developmentally appropriate preschool programs that would prepare them for school; every parent in the United States would be a child's first teacher and would devote time each day to helping such parent's preschool child to learn, and parents would have the access to the training and support needed to accomplish these goals; children will receive nutrition, physical activity experiences, and health care needed to arrive at school with healthy minds and bodies, and to maintain the mental awareness necessary to be prepared to learn (H. Res. 1804, 1994). The goals were ultimately created to meet the demands of the workforce which emphasized that workers need to be better educated, computer-literate, and possess the knowledge to understand abstract concepts. Many people feared that America's public schools were not preparing children for the increased demands of society (Slavin, 1991a).

As a result of such concerns, more and more educational departments researched and implemented more rigorous educational programs beginning in preschool. However, United States policymakers continued to promote conflicting views about the importance of a universal early intervention program enough to ensure that these national goals have been met. Many continue to be conflicted as to whether the long-term pay-offs of early intervention programs are substantial enough to support the funding it will take to implement. Studies are still being conducted on this issue.

CHAPTER II

REVIEW OF LITERATURE

Introduction

The purpose of this chapter is to provide a review of the literature and research pertinent to this study. A brief historical review establishes a need for establishing quality developmentally-appropriate early childhood educational programs in the nation. Research on the positive impact of early intervention and school readiness was reviewed to provide a rationale for designing early childhood programs that exposed children to the world around them as well as provide opportunities for them to acquire the necessary readiness skills essential to become successful students.

Theoretical Foundation

Constructivism

Jerome Bruner's constructivist theory has been the basis for many educational theories in that learning is acquired through the discovery of concepts. Anderson (1996) described the constructivist approach as one that requires children to construct meaning through active participation in the environment. Students took what they already knew and make connections with what they are learning. These connections built a strong knowledge base for continuous learning to occur. The premise behind this theory is that children process information learned from being exposed to the surrounding environment and construct cognitive structures based on their experiences. Educational opportunities should be relevant to real life experiences in order to inspire children to become life-long learners (Anderson). Constructivists believe that children use active sensory experiences to build knowledge and continue to build knowledge by attaching new concepts to

learned concepts (Doyle, 1997). An implication for a constructivist teacher is to act as a facilitator in the classroom to foster this type of inquiry behavior in children.

Brian Cambourne's Conditions of Learning Theory (1988) maintains a constructivist viewpoint by introducing a model by which teachers can aid in students' understanding of the learning process as it applies to literacy. Cambourne introduced eight conditions of learning in his model: immersion, demonstration, engagement, expectations, responsibility, employment, approximation, and response. Each condition supported both the student and the teacher in their discovery of learning and helped provide a context within which to learn (Rushton, Eitelgeorge, & Zickafoose, 2003).

Cambourne (1988) wrote that students need to first be immersed into the environment, knowledge, and curriculum in order to make sense of their own learning styles, behaviors, and the world around them. Demonstration was considered of equal importance in that the actual teaching of the lesson by the teacher portrays what the teacher wants the students to learn. Both immersion and demonstration are considered important conditions of the learning process. However, it is not until students become actively engaged in the demonstration that learning is increased. This was described as especially true for early childhood educators. Effective teachers provide real-life activities which stimulate the brain and require the use of the child's senses in order to accomplish tasks (Cambourne).

Engagement was identified as the most important condition. This condition allows the child to gain ownership of his learning by becoming an active participant in the demonstration itself. The child feels a personal benefit and as a result will want to continue in the process. Cambourne (1988) emphasized the importance of setting high

expectations for all learners. Realistic expectations should enable the teacher to plan challenging activities that will enable the child to take risks but will not set the child up for failure. By doing so, students can take responsibility for their own learning based on their individual learning style. The ultimate goal in education has been to develop responsible individuals who are able to read, write, and speak productively in society (Sawhill, 2006). Children should be given the opportunity to explore language both in social and in individual settings (Rushton, Elitelgeorge, & Zickafoose, 2003). This condition of employment provided students with ample time to utilize their individual strengths and to apply what was demonstrated to them. Students should be paired with partners as well as work cooperatively in groups to increase language proficiency. It is only through trial and error and by making mistakes that children learn best. With this in mind, the condition of approximation was considered crucial to the development of effective literacy skills. This condition allowed a child to take risks by making estimations for learning new skills, concepts, and knowledge (Cambourne, 1988). Finally, Cambourne stressed the importance of a facilitator in providing a response or feedback to the learning process in order to allow students to conduct self-evaluations. This condition enabled the child to learn, adjust, and maintain new concepts (Rushton, Elitelgeorge, & Zickafoose).

Cognitive-Development Theory

In the field of intellectual development, Jean Piaget's cognitive-development theory was also influenced by constructivist views. Piaget's work has helped educators understand the stages of development in younger children. Piaget's approach focused on the interaction between learning and the everyday experiences of the child (Ornstein &

Levine, 1993). Piaget was interested in how knowledge developed in people. He outlined four stages of development in children. The stages include: sensorimotor, preoperations, concrete operations, and formal operations. Students ranging from ages 3 to 7 (early childhood) are considered to be in the preoperational period of development. During this stage, intelligence is intuitive in nature and language development occurs rapidly (Slavin, 1991c). According to Piaget, knowledge is not inherited, but developed when children are given rich opportunities and are exposed to the world around them. Children at this stage are concrete thinkers, which means they must see and experience in order to understand. As a result, early childhood experiences should include exploratory learning and physical activity in safe and secure surroundings (Slavin, 1991c). According to Lincoln (2001), "An individual constructs knowledge and makes meaning through interpretation of his own experiences and analyses of the environment" (p. 12). To facilitate appropriate development at this age, children must encounter new language, construct arguments, express emotions, and move their bodies (Rushton & Larkin, 2001). An implication for educators is to ensure that children can expand and develop knowledge by giving them opportunities through early intervention.

Social Development Theory

Early childhood education encompasses not only academic development, but social development as well. The social development theory proposed by theorist Lev Vygotsky stressed the importance of language and social interactions for cognitive growth (Slavin, 1991c). Vygotsky maintained a sociocultural version of constructivism in that understanding is obtained through interactions (Rushton, Elitelgeorge, & Zickafoose, 2003). Social development occurs best when children develop relationships and feel safe

in their environment (Logue, 2007). The culture in which a child is exposed directly affects his or her learning development (Marzano, 2004).

According to Harkvoort (2002), children who have few interactions with others, are less likely to acquire the knowledge and skills needed for pertinent cognitive development. Meaning is gained when children interact and are able to imitate the behaviors of others. With adult guidance, children are able to gain a wide range of skills that are not as attainable otherwise. Vygotsky's theory emphasized that there is often a significant difference between what a child can do on his own and what the child can do with help. Vygotsky called this difference the zone of proximal development. In order to fully develop the zone of proximal development, children must be interested in the subject matter, must engage in full social interactions, and should be immersed in quality learning activities that stimulate as well as challenge the brain (Slavin, 1991c; Harkvoort; Kagan, 1990). The main goal of preschool education should be to transform a child who is entirely reactive to a child who is intentional (Bodrova & Leong, 2005). Social development will naturally occur in environments where children are nurtured in relationships with others (Johnson, Ironsmith, Snow, & Poteat, 2000).

Brain Research

Technological innovations in recent years have allowed scientists to study the cognitive development in young children. This recent brain research supported the ideas behind the learning theories of Bruner, Piaget, and Vygotsky. According to Caine and Caine (1991), the belief that concepts are developed by connecting new concepts to existing knowledge is compatible with the brain research indicated that neurons in the brain change extensively when children are stimulated. Brain development depended

upon activity. Advocates of early childhood education stated strongly that the environment plays a crucial role in the growth and development of children (Caine & Caine; Rushton & Larkin, 2001). Brain research has supported the importance of creating and implementing a positive, child-centered environment that is appropriate for specific ages and stages of development (Rushton & Juola-Rushton, 2008; Rushton & Larkin).

Children develop and learn best in the context of community where they are safe and valued, their physical needs are met, and they feel psychologically secure. Emotions, learning, and memory are closely linked as different parts of the brain are activated by the learning process. Researchers stated it is crucial, especially in the younger years, to provide a rich and safe environment that lays the groundwork for this neurological network to develop (Rushton & Larkin). Researchers also stated that teachers who are privy to current brain research are more likely to empower students by creating differentiated activities and meaningful problem-solving opportunities which allow children to become actively engaged in their learning. When children are able to explore and discover in this kind of environment, they are able to use their senses to make informational connections in their brains (Rushton & Larkin).

Learning in children has been linked to the child's age and stage of development. As Wasserman (2007) stated,

> Until the age of five, children use the right hemisphere for almost all learning. Once the child has reached kindergarten, he is expected to learn in a different manner. Before age five, children learn through exploration and play, after age five, children are expected to sit still and learn at a desk or table. (p. 418)

According to Wolfe and Brandt (1998), there are certain windows of opportunity for learning in which the brain allows for increased amounts of information to be processed and retained at certain crucial times in a child's life.

Each region of the brain consists of a highly complicated neurological network. Learning does not take place in isolation. All parts of the brain work together to ensure knowledge is processed and retained. When a child is stimulated, a number of areas in the brain work together simultaneously, and all areas are necessary in order to read and write (Sylwester, 1997). Stimulating experiences activate a variety of neurons and create connections among various regions of the brain, therefore promoting brain development. Learning and brain development are mutually dependent and what happens early in development has lasting effects on a child's knowledge acquisition. According to the National Scientific Council on the Developing Child (2005), the idea of exposing children to language at a very young age is based on current brain research that indicated children acquire many fundamental cognitive skills between the ages of three and five. These years are crucial to the development of personal/social, adaptive, motor, and communication skills. By exposing children at an earlier age, they are given a jump start toward a more successful academic career.

Kindergarten Readiness

School readiness and school proficiency are two critical educational issues being discussed by educators and policy makers in our country today. Approximately one-third of children are entering kindergarten with major delays in language and basic academic skills (Armbruster et al., 2006). This phenomenon is not area specific. Children with these delays are found all over the United States, in large urban communities as well as in

poor rural communities. As a result, there is a demand for reform in America's educational system. Too many kindergarten teachers today judge children as not ready for typical kindergarten-level work. With the push-down of the curriculum increasing, it is crucial that our young children are given the opportunities to acquire the skills necessary to be ready for kindergarten at the age of five (Bracey, 2000; Kagan, 1990; Rimm-Kaufman et al., 2009).

The idea of school readiness for children is commonly based on a standard of physical, intellectual, and social development that is adequate to enable children to fulfill school requirements and to understand the curriculum content (Cody, 1993; Kagan, 1990, 1992; Okon & Wilgocka-Okon, 1973). Lewis (2003) describes readiness as "young children are ready to have successful learning experiences in school when there is a positive fit among the child's developmental characteristics, school practices, and family and community support" (p. 484). Most educators agree that there are a common set of key factors indicating school readiness for kindergarteners (Wesley & Buysse, 2003).

It has been stated that Maslow's first level of needs, the physiological needs, must be met in order to ensure readiness for learning. According to Slavin (1991a), Maslow characterizes a human's needs into two distinct categories: deficiency needs and growth needs. People are motivated to satisfy the needs essential to physical well-being before anything else. Children who are hungry, unhealthy, or in some kind of danger will not be as motivated to learn. Children who feel unloved or live in a dysfunctional home are less likely to have the motivation to learn new concepts. Once a child's deficiency needs are met, they are more open to strive for their growth needs- the need to know and understand things and to appreciate other people (Slavin, 1991a).

Over the years, researchers have differentiated between readiness for learning and readiness for school (Kagan, 1990). Readiness for learning occurs when a child is developmentally ready to learn new content. This comes at a very young age for the majority of children. Readiness for school is thought of as possessing the specific skills associated with success in school. "In order to learn, a child must have certain cognitive skills and must have a structure inside his/her head to accept the learning- a file cabinet or a piece of software," (Payne, 1996, p.119). The importance of effective communication skills, social stability, and essential background knowledge is critical for meeting kindergarten expectations when entering school (Piotrkowski, Botsko, & Matthews, 2000). The National Association for the Education of Young Children (2002) has promoted the idea that families should be given comprehensive services and family support to children before kindergarten entry in order to better prepare many children for the school's expectations.

In the 1990s, the National Education Goals Panel (H. Res. 1804, 1994) determined that children's school readiness involves five dimensions: physical well-being and motor development, social and emotional development, approaches toward learning, communication and language usage, and cognition and general knowledge. In addition, the panel emphasized that school readiness is not just about children being ready for school but that families, schools, and communities play a crucial role in supporting children's school readiness. Without the support of all stakeholders, children are less likely to be ready for school (H. Res. 1804).

Early Literacy

According to the literature, most kindergarten teachers agree that there are certain skills pertinent to later reading and writing success. These skills include alphabet knowledge, print awareness, phonological awareness, invented spelling, oral language, reading comprehension, the ability to write one's own name and the ability to recognize and name letters quickly (Little, Kagan, & Frelow, 2006). Armbruster et al., (2006) outlined the building blocks of reading and writing for parents and early educators. They wrote:

> To become skilled and confident readers over time, young children need many opportunities to: build spoken language by talking and listening; learn about print and books; learn about the sounds of spoken language; learn about the letters of the alphabet; and listen to books read aloud. (p. 3)

Print awareness is an important part of knowing how to read and write. Children who know about print understand that the words they see in print and the words they speak and hear are related (NAEYC, 1995; Ramey & Ramey, 2004; Scarborough, 2001).

According to Doherty (1997), children who are ready to meet kindergarten expectations when entering school are more likely to experience success throughout their lives by graduating from high school, obtaining employment, and making positive contributions to society as productive citizens. Children who are not ready are more likely to repeat a grade, need special education services, or drop out of school before graduating (Doherty).

Socialization

Researchers who have studied child development have known for years that socialization and emotional stability are critical to the development of the "whole" child. A report by the National Scientific Council on the Developing Child (2005) stated that stress at an early age in a child's life can damage their reasoning and critical thinking skills, IQ, language development and social competence. Too many children come to school lacking the social skills necessary to participate in the activities imperative for academic achievement. Early social intervention ensures that a child will understand relationships enough to respond to stress related factors in a healthier manner (Rimm-Kaufman et al., 2009).

A great deal of the social learning that kindergarteners practice is based on the interactions they experience in high-quality preschool settings (Logue, 2007). Without appropriate interactions at an early age, children do not possess the background knowledge needed to develop successful relationships in kindergarten. As a result, the child struggles to conform to the rules and procedures of the classroom as well as to find his "place" in the kindergarten society. Students who fail in their early relationships are usually more inattentive, disruptive, and withdrawn. Statistics have shown that children who failed at relationships at an early age were more likely to become drop outs, juvenile delinquents, teen parents, and welfare dependents (Ramey & Ramey, 2004).

> Negative behaviors are directly related to social rejection. Parents and teachers should not assume that the child will grow out of negative behavior patterns. The fact is these behaviors tend to predict how well a child is accepted in subsequent years. (Johnson et al., 2000, p. 210).

In comparison, children who are popular with their peers tend to be above average both socially and cognitively and have less aggression and introverted behavior (Newcomb, Bukowski, & Pattee, 1993). Negative behaviors can be prevented by intervening while a child is in his earliest stages of development and by modifying behavioral dispositions that seem to be conducive to later social difficulties (Ladd & Price, 1987). "Helping children to refrain from aggressive acts and pursue more extensive positive contacts prior to kindergarten may also help children gain peer acceptance in the new school environment" (Ladd & Price, p. 1187).

Preschool has been considered a developmentally appropriate time for children to acquire the social skills needed for later social adjustment. Some of the social skills taught to preschool children include taking turns, sharing, helping others, working cooperatively with others, following directions, listening, expressing feelings, maintaining self-control, conflict resolution and controlling feelings of anger appropriately (Johnson et al., 2000). Research has shown for years that children learn to build healthy relationships when they are taught and modeled by an appropriate adult (Payne, 2008; Thompson, 1994). The results of negative behaviors are considered detrimental for everyone involved. The teacher must spend too much time intervening and redirecting the misbehavior. Not only does this take away from valuable instructional time, children who are conforming are distracted and eventually deprived of the opportunity to participate in quality learning activities. The child who exhibits poor social skills becomes isolated and begins to fall further and further behind both academically as well as socially. For many, this rejection never goes away and these

children are more likely to become delinquents, high school drop outs, or to have psychological problems later in life (Johnson et al.).

Social and Academic Linkage

Payne (2008) quotes Dr. James Comer as stating, "No significant learning occurs without a significant relationship" (p. 48). Research indicated that children who feel secure in their environment and are accepted by their peers tend to do better academically, are well-behaved in school and eventually become well-adjusted adults (Choi & Kim, 2003). Development is affected by emotion, and children need to interact and build relationships with others in order to enhance learning (Ladd & Price, 1987).

Schools are under pressure to raise test scores and improve academic performance. Too often, educators do not understand the importance of social development and its impact on academic proficiency. So many times, schools offer remediation and intervention for academic skills, but forget to focus on the remediation of underdeveloped social skills. These two dimensions have been dependent upon one another. Placing an emphasis on socialization is important to academic performance. Ladd (1990) stated, "Children's learning is enhanced when they undertake new tasks in the company of familiar persons. By making new friends in the classroom, children create a more familiar or supportive learning environment, which in turn promotes academic success" (p. 1096). Children who are more cooperative, self-disciplined, and less aggressive towards others do better on academic tasks within the classroom (Choi & Kim, 2003). Peer relationships have a positive impact on social competence and academic performance. Children who have strong social skills and good friendships enter school with expectations for success. Strong social skills and relationships need to

be developed way before entering kindergarten at age five and preschool is the ideal time (Choi & Kim; Johnson et al., 2000). According to Costa (2000),

> Students do not necessarily come to school knowing how to work effectively in groups. They may exhibit competitiveness, narrowness of viewpoint, egocentrism, and criticism of others' values, emotions, and beliefs. Cooperative skills need to be taught directly at an early age. (p. 204)

Frede and Barnett (1992) affirmed that children who attended developmentally appropriate early intervention programs achieved higher scores on standardized assessments in first grade.

With early intervention, children are taught to share, establish play friends, and conform to the rules and procedures of a more structured environment as well as respect the authority of adults. Ladd and Price (1987) found in their study that children with higher levels of cooperative play in preschool and a pattern of appropriate social interactions with peers tended to become better liked by classmates in kindergarten and were perceived by teachers as active participants in the classroom.

Preschool Quality

The pressure to improve student proficiency in later grades is unfortunately causing an increase in what is now expected of kindergarteners. This has created problems for children who are not given the opportunity to attend a quality preschool program before entering kindergarten. Research indicated that poor-quality programs can be detrimental to children. As a result, there is a current movement to implement national learning and program standards for all early intervention programs offered to three and four-year-old children. Kendall and Marzano (2000) offered three obvious

reasons for developing and utilizing standards: to establish an understanding of the curriculum, to maintain high expectations for the achievement of all children, and to ensure accountability.

Former President George W. Bush encouraged all states to develop early learning guidelines aligned to their K-12 standards. Although the learning standards for early intervention vary by state, research emphasizes that children's learning and development is not one-dimensional. Every domain-cognitive, physical, social-emotional, language and communication- must be considered when developing learning standards for an intervention program. Unfortunately, there are certain early learning standards that do not emphasize the importance of the physical and social-emotional domains of a child's early development. Learning standards that do not consider every area of a child's development do not reflect knowledge gained from decades of research that emphasizes the idea that physical well-being is essential in the development of a child and that relationships are the foundation for learning (Crnic & Lamberty, 1994; Little, Kagan, & Frelow, 2006).

The idea of offering early intervention for disadvantaged children and their families first occurred in the early 1960s with the development of Head Start Preschools in 1965. This federally-funded program offered a variety of social services and implemented early intervention for children in low-income families. The goal of this program was to help children rise above the cognitive, social, emotional, and physical deficits that often stem from growing up in low income homes (Cotton, 2000). To regulate such programs, the government used regulatory standards. These standards outlined minimal requirements for operation. These standards focused more on program

practices instead of final results. Head Start used both regulatory and performance standards. The performance standards focused on student outcomes which contribute to children's development (Zill, Resnick, & Kim, 2003). According to NAEYC (1995), Head Start programs included several elements proven to be effective in the early intervention efforts. These elements included: (a) providing comprehensive services to meet the diverse needs of the individuals; (b) providing education for parents to increase parental involvement and accountability; (c) offering many experiences and innovative learning opportunities either directly to children or through parent participation. Agencies desiring to implement early intervention programs are encouraged to include similar tactics and follow the accreditation guidelines of the NAEYC (1998). The guidelines outlined by NAEYC (1998) have focused on implementing professional standards in all early intervention practices in order to ensure high quality preschool programs throughout the entire United States.

To ensure a quality educational program, some activities, goals, and instructional techniques considered appropriate for older elementary children are not appropriate for preschool-aged children (Mead, 2008). High quality preschool programs have strived in order to ensure that children are ready for the academic and social expectations of the formal kindergarten program. They provided children with the cognitive, social, and communication skills required to be successful in elementary school. In a quality preschool program, children are exposed to pre-literacy skills in order to increase their ability to read. At this age, children are beginning to develop appropriate character traits and are learning to interact successfully with other people. Barnett & Belfield (2006)

stated that center-based programs in which children actually attend classrooms are more likely to enhance development in children. As stated by Barnett and Belfield (2006),

> In the best programs, children are systematically, regularly, and frequently engaged in a mix of teacher-led and child-initiated activities that enhance the development of language, knowledge of concepts and skills, problem-solving abilities, self-regulation and other socio-emotional skills, attitudes, values and dispositions. (p. 80)

In addition, teacher education and expertise can make a difference in the quality of the preschool program. Preschool programs differ significantly in the area of hiring certified and/or noncertified teachers. Mead (2008), identified teacher quality as the most important in-school factor that determines how well students are learning. Teachers trained in early childhood understand how and when children learn best, know when to implement change, and incorporate learning activities based on experiences into the curricula. Successful teacher/pupil interactions in the preschool classroom are one of the most important determinants of preschool quality.

Mead (2008) reported that researchers at the National Center for Early Development and Learning have recognized characteristics in teachers that are conducive to learning in a preschool setting. These characteristics included: explicit instruction in crucial skills, compassionate and sensitive interactions, productive feedback, vocal interaction, productive stimulation, and a classroom setting that is encouraging and inviting. According to Gilliam (2005), research identified that children in preschool programs aligned with the educational goals of early elementary school were likely to graduate high school and become prolific citizens. Children who attended high-quality

preschool programs were also less likely to have children during their teenage years or to become caught up in the criminal justice system.

States across the nation have developed early learning and program standards which outline the expectations for children's learning and development before entering kindergarten. During the 2007-2008 year, state-funded preschool education made the most progress by increasing enrollment and raising the standards (Barnett et al., 2008). Most states who have implemented early intervention programs meet a majority of the benchmarks for program quality standards. Oklahoma is the only state that allows every 4-year-old to attend a public preschool program of some kind and other states are close to reaching that same goal (Barnett et al.).

The vision of providing a universal preschool for all 4-year-olds in the nation has been a point of contingency for many practitioners and policymakers across the nation. There are concerns that universal preschool is not cost-effective and almost impossible to mandate, especially if nationwide performance standards are not required (Little et al., 2006). However, with the nation's attention focused on GOALS 2000, and the expanded ways that Title I federal monies can be spent on early intervention, a growing number of public school districts are recognizing the importance of offering access to high-quality and developmentally appropriate preschool programs that prepare children for school (Coleman & Churchill, 1997). Fortunately, public preschool programs are closely monitored and are required to follow strict guidelines to ensure accountability and maintain funding.

Private Versus Public Preschool

Historically, preschool programs in America have been both privately, federally, and/or state funded. Preschool has been dominated primarily by the private sector and limited to those whose parents can afford it. Many of these private preschools were less likely to be regulated, are inconsistent in quality, and lack a standards-based curriculum program. Barnett and Belfield (2006) found in their research that the most effective preschool programs are those who employ highly qualified teachers and maintain smaller class sizes. State preschool programs that enforced learning standards rank next, followed by Head Start and more average state programs. Regular day care programs or family home daycare fell last when it came to effectiveness. The differences in the quality of child care provided to families has made it difficult to ensure that all children are given the same opportunity to develop the essential cognitive and social skills necessary for kindergarten success (Barnett et al., 2008).

According to Lubeck (1989), the traditional private preschool is a half-day program for middle-class children and participation in this program is based on a fee. The preschoolers are often facilitated by a non-certified teacher. This teacher's job is to watch the children interact with one another and to allow them the freedom to explore their surroundings. The teacher has established a learning environment that is child-centered and also has an appreciation for developmentally-appropriate activities. In many traditional preschool programs, there are no specific learning guidelines or standards. Often there is no consistency in the skills and concepts taught in private preschool facilities. Children are free to learn at their own pace and are often at different levels developmentally when entering kindergarten (Lubeck).

In contrast, public preschools have been primarily funded by the states and/or local school districts. They tend to be more academic in nature and are most often implemented to ensure that the low income children are given the same opportunities to learn as the middle and upper class children. Public preschool programs have shared many of the same characteristics of public schooling for older children: more teacher-directed instruction, clear goals and expectations, rigorous schedules, and specific skills development. The public program has often followed a set curriculum and adheres to the guidelines and standards established by the state (Lubeck, 1989).

The quality of preschools, both private and public, have been measured through certain aspects such as teacher to pupil ratio and teacher education. Most state preschool programs set guidelines for class size based on the recommendations of the NAEYC (2002). Quality has also been measured by evaluating the curriculum used in the classroom to determine if it increases the cognitive and language development of the children, long-term academic achievement, and reduces the number of children placed in special education or retained in a grade (Barnett, 1995; Waldfogel, 2002).

Gender Differences

Boys and girls are very different in the way they learn. These differences can affect the attitudes, behaviors, and school readiness in many children (Slavin,1991b). Research has, for years, pointed out the differences in the ways that boys and girls learn and develop, both physically and intellectually. In the last decade, there have been an increased number of studies on the brain development of males and females. New brain research verified what scientists have thought for years- that there are real differences between the male and female brain development (Ripley, 2005).

The brain is constantly changing in response to hormones, stimulation, experience, diet and medication. Research indicated that a male's brain is about 10% larger than a female's (Ripley, 2005). When scientists viewed a live human's brain, they reported that a female's brain has more connections between the right and left hemispheres. As a result, females tend to do better with literacy-related activities (Kommer, 2006). Females tend to use more parts of their brain to accomplish tasks. Males seem to think in more centralized regions (Ripley). As a result, males are better with spatial tasks such as mathematics and graphs (Slavin, 1991b).

Psychiatrist, Jay Giedd, has researched gender differences for over thirteen years. He scanned children's brains to determine brain size as well as the brain's maturity. According to Ripley (2005), Giedd's study of 508 boys and girls showed that most parts of the brain mature faster in girls. The regions of the brain that deals with communication such as verbalization, handwriting, and memorization matured several years earlier in girls. However, the study showed that the regions of the brain used for mechanical reasoning, visualization, and spatial reasoning were shown to be mature in the brains of four to eight year old boys (Ripley).

A comprehensive study conducted by Maccoby and Jacklin (1991) outlined four main areas in which males and females are really different. The areas were identified as verbal aptitude, visual-spatial aptitude, mathematical aptitude, and aggression. Females have been identified as having greater verbal skills at an earlier age than males, and their communication skills mature at a faster rate. Secondly, males were better with visual-spatial concepts than females. They were able to see and determine spatial relationships much better than females. Next, due to a higher functioning visual-spatial ability, boys

tend to be better with mathematical aptitude. Finally, the study indicated that boys are more aggressive than girls both physically and verbally. Levels of aggression were often related to levels of sex hormones in the males (Maccoby & Jacklin).

Psychologist Leonard Sax (2001) emphasized that brain development is contingent on a person's senses. A person's eyes, ears, and nose have been identified as vital to brain development. Sax's work has emphasized the idea that females see and hear things that males cannot. Females were identified as more sensitive to surrounding noises and tend to pay attention better than males. Females were more observant of their surroundings and gain new concepts and information easier and quicker than males. As a result, it is more likely that a male would need to practice a skill more often in order to transfer the knowledge from short- to long-term memory. Too often, the kindergarten curriculum emphasizes females' strengths and males' weaknesses (Sax).

It is important that schools, especially those who cater to the very young, understand the differences between how boys and girls learn best. Many kindergarten classes today stress reading and math skills and often do not incorporate playing, drawing, painting, singing, and interacting with the environment. Educators often expect that children have already had these experiences in preschool. Children need a balance of multi-sensory activities to help their brain develop properly (Sax, 2006).

Disadvantaged Children

Although more and more children are attending preschool, there has been a gap in the enrollment between children from advantaged and disadvantaged homes (Magnuson, Ruhm, & Waldfogel, 2007). Many students, particularly low-income and minority children have entered kindergarten far behind their peers. Children from disadvantaged

homes enter school with fewer readiness skills and spend most of their educational career suffering the consequences. Financial hardships adversely affect cognitive, language, and social development because there are reduced opportunities to experience the world around them. Children from more affluent homes are more likely to eat at restaurants, take family vacations, and attend various social gatherings. They are also provided with an abundance of resources such as books, video games, and computerized devices. Unfortunately, children from impoverished families have not been given the same enriching opportunities and are lacking in developmental concepts (Payne, 2008).

According to the Centre for Community Child Health (2008), children living in poverty were less likely to be read to by their parents. They were less likely to be exposed to experiences such as visits to the library, museums, and educational field trips that contribute to the development of emergent literacy skills. Impoverished children were less likely to develop secure relationships where positive communication is emphasized. Often children who live in poverty were influenced by negative communication often stemming from stress and anger in the home. A study conducted by Hart and Risley (2003) found that children whose families received welfare had vocabularies that were half as large as those from more affluent peers, and the differences remained consistent throughout childhood. This gap in language and literacy skills was due to the lower quality and quantity of parental speech in the household of those on welfare.

A study by Burts, Hart, Charlesworth, DeWolf, Ray, Manuel, and Fleege, (1993) reported that impoverished children who attended a developmentally appropriate preschool program showed higher reading achievement in first grade than those children

who attended a developmentally inappropriate program. Economically disadvantaged families are less likely to afford the high quality early childhood education that is beneficial to all young children, especially those who are disadvantaged (Hodgkinson, 1995; Kalson, 2002; Oberklaid, 2007; Ramey & Ramey, 2004). Unless early intervention and support has been implemented in the lives of disadvantaged children, the cycle of poverty is less likely to be broken. It continues into adulthood, and society ultimately bears the social and economic burden of a community of people who are unable to positively contribute (Parks, 2000).

Children from economically poor, undereducated parents enter school with fewer academic and social skills than their more advantaged peers, and the gap among these groups is quite profound (Magnuson et al., 2007). The Allegheny County Early Childhood Initiative, a privately funded project designed to provide a better start in life for children who otherwise were likely to fall far behind their classmates, showed that early intervention made it possible for disadvantaged children to achieve at the same level as the more advantaged children (National Childcare Information and Technological Assistance Center, 1999). Children who were born into poverty have a much better chance of success in school when they attend a high-quality early intervention program. The positive learning experiences and nurturing relationships found in these programs were beneficial to all children. Daily interaction played a vital role in a child's emotional and mental development. Proper brain development is contingent upon consistent positive interactions. According to Burchinal, Lee, and Ramey (1989), low-quality childcare can hinder a child's brain activity and delay development due to a lack of environmental and social stimulation.

Following decades of research on the lack of achievement in poor children, the Virginia Department of Education has been proactive in trying to close the achievement gaps in children. They have worked to promote the learning for children at risk for failure from the beginning of their educational career. The department has worked diligently to develop and maintain high quality preschool programs, develop supplemental reading programs for children who lack appropriate literacy skills and implement school-wide projects to support families (Glod, 2006). Fortunately, the benefits of investing in the development of early intervention to improve early childhood experiences are accepted more and more by state educational departments. States are beginning to implement strategies aimed at ensuring the success of both children born into poverty and those who are not. As quoted by Joan Burnham (2000),

> We should direct ourselves towards a truly child-centered society. We should create or nurture supporting learning environments for all very young children, regardless of the backgrounds and resources of their parents. We should set up these environments to honor the dignity and uniqueness of every child and provide an enriched world of experiences and love. Doing this, in turn, would encourage the small brain of every child to grow, develop, and even increase in size to its fullest potential. Perhaps more children would then have the critical start in life that all children deserve and need. (p. 542)

Summary

According to the developmental theories and the constructivist approach to learning, children learn best in environments that allow them to explore, problem-solve, and discover new concepts through active participation. New concepts are gained when children can make connections with what they know and what they learn. In today's era of more rigorous standards, children are expected to come to school ready to learn. Students must possess the fundamental cognitive and social skills necessary to meet the kindergarten standards outlined by the law. In order to meet the increasing demands of the workplace, America's children must be provided a firm foundation before they enter school. Although the investment for universal preschool is not small, the commitment of ensuring a quality early education for preschoolers is a commitment that will pay off in the end. Preschool education is a proactive initiative that will ensure that the needs of all children, regardless of gender, ethnicity or socio-economic status, are met before they enter school.

CHAPTER III

METHODOLOGY

Introduction

Chapter III describes the participants and design of the study. It outlines the research questions that will be addressed in the study. It identifies and defines the independent and dependent variables. This chapter will also explain the intended data, the data collection process, the instrument that will be used, and the statistical analyses that will be undertaken to interpret the data.

Research Questions and Hypotheses

The study determined whether preschool programs had an effect on the overall achievement levels of kindergarteners. The study determined if there was a significant difference in the literacy and numeracy averages of students who attended a public preschool, a private preschool, or no preschool at all as well as determined if there is a significant difference in the literacy and numeracy averages of kindergarten boys and girls who attended preschool. The study also determined if there is a significant difference in the literacy and numeracy averages of kindergarten students living below the poverty level who attended preschool and kindergarten students living above poverty level who attended preschool. In addition, the study determined if there was a significant difference in the literacy and numeracy averages of minority and non-minority students who attended a preschool. Finally, the study determined if there was a relationship between the academic achievement and the social competence of kindergarten students who attended preschool. The study examined the following research questions:

1. Is there a significant difference in the early literacy and early numeracy averages of kindergarten students who attended a public preschool program and

kindergarten students who attended a private preschool program as identified on the AIMSweb Progress Monitoring and Response to Intervention System?

2. Is there a significant difference in the early literacy and early numeracy averages of kindergarten students who attended a preschool program (private and/or public) and kindergarten students who attended no preschool program as identified on the AIMSweb Progress Monitoring and Response to Intervention System?

3. Is there a significant difference in the early literacy and early numeracy averages of male and female kindergarten students who attended a preschool program (private and/or public) as identified on the AIMSweb Progress Monitoring and Response to Intervention System?

4. Is there a significant difference in the early literacy and early numeracy averages of children living below the poverty level as recorded by free/reduced lunch status who attended a preschool program (private or public) and children living above the poverty level as recorded by free/reduced lunch status who attended preschool (private or public) as identified on the AIMSweb Progress Monitoring and Response to Intervention System?

5. Is there a significant difference in the early literacy and early numeracy averages of minority kindergarten students who attended a preschool program (private or public) and non-minority kindergarten students attended a preschool program as identified on the AIMSweb Progress Monitoring and Response to Intervention System?

6. Is there a relationship between the academic skills and the social competence of kindergarten students who attended a preschool program (private and/or public) as identified on the School-Age Social and Emotional Adaptive Skills Inventory?

The hypotheses for these questions are as follows:

H_1**:** Kindergarten students who attended a public preschool program will score significantly higher than kindergarten students who attended a private preschool program on early literacy and numeracy skills as identified on the AIMSweb Progress Monitoring and Response to Intervention System.

H_2: Kindergarten students who attended a preschool program will score significantly higher than kindergarten students who attended no preschool program on early literacy and numeracy skills as identified on the AIMSweb Progress Monitoring and Response to Intervention System.

H_3: Female kindergarten students who attended preschool will score significantly higher than male kindergarten students who attended preschool on early literacy and numeracy skills as identified on the AIMSweb Progress Monitoring and Response to Intervention System.

H_4: Kindergarten students living above the poverty level who attended preschool will score significantly higher than kindergarten students living below the poverty level who attended preschool on early literacy and numeracy skills as identified on the AIMSweb Progress Monitoring and Response to Intervention System.

H_5: Non-minority students who attended preschool will score significantly higher than minority kindergarten students who attend preschool on early literacy and

numeracy skills as identified on the AIMSweb Progress Monitoring and Response to Intervention System.

H_6: Kindergarten students who attended preschool who score higher in social skills competence as identified on the social skills inventory will also score higher in academic skills as identified on the AIMSweb Progress Monitoring and Response to Intervention System.

Participants in the Study

Participants in this study were 19 kindergarten teachers from three elementary schools in a coastal school district. The researcher asked the kindergarten teachers in the district to complete a social skills inventory on each kindergarten student at the end of the 2009-2010 school year. The researcher then asked the assistant superintendent to remove the students' names and then code the inventories using the following criteria: student numbers, preschool attendance, gender, socioeconomic status and ethnicity. The inventories were not shared with the researcher until after they were coded by the assistant superintendent.

Research Design and Procedures

The study was non-experimental in nature. There was no random assignment of group members, and the members were not given special treatment. Data was collected from three elementary schools within a coastal school district. All kindergarten students within the district were assessed in early literacy (letter naming, letter sounds, phoneme segmentation and nonsense word fluency) and early numeracy (oral counting and number identification) three times during the school year using the AIMSweb Progress Monitoring and Response to Intervention System. The assessments evaluated student

progress in the fall, winter and spring of the 2009-2010 school year. The researcher retrieved, with permission, the early literacy and numeracy data from the school district's database. A literacy average was acquired for each student by averaging the student's letter naming, letter sound, phoneme segmentation and nonsense word fluency scores. A numeracy average was acquired for each student by averaging the student's oral counting and number identification scores. The literacy average and the numeracy average for each student was used to determine overall academic achievement.

Approval was obtained from the district superintendent to speak with the kindergarten teachers about their willingness to participate in the study (see Appendix B). Following superintendent approval, the kindergarten teachers in the district were asked to complete a social skills inventory on each kindergarten student in their class at the end of the 2009-2010 school year (see Appendix C). The inventory assessed the social competence of each kindergartener. Because a child's behavior and adaptation to the classroom environment is crucial for academic success in the classroom (Ladd, 1990), the inventory included indicators regarding the child's ability to cope with anger, behave appropriately, solve problems and engage in self-directed academic activities. The data required teachers to respond using yes or no statements, and the teachers were asked to check all statements that could be answered yes for each child on the inventory. A student's social competence was measured by the total number of yes responses on the inventory. To protect the confidentiality of the students, a number was assigned to each inventory by the assistant superintendent.

Multivariate analyses of covariance (MANCOVA) statistical tests were conducted to assess the statistical significance of the effect of preschool attendance, gender, socio-

economic status and ethnicity on the academic development of kindergarten students. In addition, multiple regression analyses were conducted to determine if a relationship existed between the independent variable, social skills competence, and the dependent variables, literacy average and numeracy average.

Variables in the Study

The dependent variables for this study were the AIMsweb early literacy averages and the early numeracy averages of kindergarten students in the three elementary schools in a coastal district. There were five independent variables that were evaluated for their influence in this study. The independent variables were as follows:

1. Preschool attendance of kindergarten students prior to entering kindergarten
2. Gender of kindergarten student
3. Socio-economic status of kindergarten student (indicated by participation in the free/reduced lunch program)
4. Ethnicity of kindergarten student (white/non-white)
5. Social skills competence (as indicated on the social skills inventory).

Data Collection Process

The researcher requested permission from the district superintendent to speak with the kindergarten teachers at each school. During this meeting, the teachers were invited to complete a School-Age Social and Emotional Adaptive Skills Inventory for each of their kindergarten students. Each inventory was coded with a number to protect the anonymity of each student. Teachers were informed that this study would only be used to determine what effects, if any; early intervention has on kindergarten achievement. Teachers were notified that the students' names would not be identified in

this study. The inventories were distributed at this time, and the teachers were asked to return the inventories within three weeks. Upon completion of the inventories, the kindergarten teachers were asked to return them to the assistant superintendent of the district. The assistant superintendent then coded the inventories using the following criteria: student numbers, preschool attendance, gender, socioeconomic status and ethnicity.

The responses from nineteen kindergarten teachers in the district were collected with a total of 373 inventories. Early literacy and numeracy scores were acquired through the AIMSweb database. The school district secured a license to use the instrument, maintain scores and utilize data through Pearson Education Incorporated.

The School-Age Social and Emotional Adaptive Skills Inventory is not an instrument commonly used in kindergarten. The checklist was borrowed, with permission, from the Child Guidance Center at Orchard Place (see Appendix D). This inventory was originally created for the Early Child Resource and Referral Center at Orchard Place. The inventory contained 36 indicators which were divided into five sections. The sections included: social behavioral skills; social and general problem-solving skills; ability to cope with anger; ability to engage in self-directed academic behaviors; emotional well-being and level of self-esteem. The inventory has been used in applied settings quite extensively. Teachers were asked to check all statements that could be answered yes for each child on the checklist. A student's social competence was measured by the total number of yes responses in the inventory. Parents received a copy of the inventory along with the child's report card at the end of the school year. Appendix A contains a copy of the inventory instrument, Appendix B contains a copy of the

permission letter sent to the superintendent and the permission to conduct research in the district form, Appendix C contains a copy of the teachers' instructions, Appendix D contains a copy of the required permission to use the School-Age Social and Emotional Adaptive Skills Inventory, and Appendix E contains the IRB approval letter.

Analysis of the Results

Primary data from the School-age Social and Emotional Adaptive Skills Checklist and archived data from AIMSweb Progress Monitoring and Response to Intervention System was entered in Statistical Package for the Social Sciences (SPSS) and relevant statistical tests were conducted.

To examine whether a relationship existed among the dependent variables of early literacy skills and early numeracy skills and each of the other independent variables, preschool attendance, gender, ethnicity and socioeconomic status, a multivariate analysis of covariance (MANCOVA) was conducted. The advantage of using a multivariate analysis of covariance is that it allowed the researcher to examine more than one dependent variable at once or the simultaneous effects of the independent variables on more than one dependent variable. It is an appropriate analysis when a researcher is comparing group differences. Because multiple comparisons are made in a MANCOVA test, there is an improved chance of decreasing type 1 error rates. MANCOVA tests assume multivariate normality, homogeneity of the dispersion of variance and covariance matrices, and linearity.

Multiple regression analyses were performed to determine whether a relationship existed between the dependent variables, literacy and numeracy averages, and the independent variable, social skills competence. Multiple regression analysis is an

appropriate statistical test to run to determine the effect social skills competence has on academic achievement because it allows for the simultaneous control of many variables even though no two observations are exactly alike on all the variables. The indicators on the social skills inventory were all different although they all measured the level of social skills competence. Multiple regression tests assume multivariate normality, linearity, and homoscedasticity (variance of errors is the same across all levels of the independent variable).

Summary

Using MANCOVA, the researcher attempted to identify factors that affect the academic and social development of kindergarten students. The independent variables were preschool attendance, gender, socio-economic status and ethnicity. The dependent variables were the students' literacy and numeracy averages as identified on the AIMSweb Progress Monitoring and Response to Intervention System. Multiple regression analyses were utilized to determine if there was a statistical difference in the literacy average and the social skills development of kindergartners who attended preschool and the numeracy average and the social skills development of kindergarteners who attended preschool. The study was conducted over a nine month time frame initiating the efforts of nineteen teachers and four administrators in one coastal school district.

CHAPTER IV

RESULTS

Introduction

Kindergarten standards outline the early learning guidelines suggested to assist all kindergarten teachers in their efforts to ensure student success. Although kindergarten students have many similarities, their knowledge and skill levels vary as a result of their early childhood experiences. The diverse abilities of the students and the gaps that exist in their knowledge base when they enter kindergarten make it difficult for teachers to ensure overall kindergarten success. The learning that takes place during the early childhood years serves as a foundation for all later academic and social development. "The highest priority in education should be to establish a system of good quality early childcare and education for all children" (Sawhill, 2006, p. 4). The purpose of this study was to examine the relationship between early childhood education and the early literacy and numeracy skills of kindergarten students. The study also examined the relationship between the academic achievement and the social skills development of kindergarteners. This chapter describes the results and the statistical findings of the study.

Description of the Participants

Primary data consisted of 373 social skills inventories completed on kindergarten students by kindergarten teachers from three elementary schools in a Mississippi coastal school district. Nineteen teachers completed an inventory for each one of their kindergarten students. The demographic data of the participants indicated that the participants were all Caucasian females. There was a wide range of educational experience reported: 37% of the teachers had one to five years of teaching experience, 26% of the teachers had six to 10 years of teaching experience, and 37% had greater than 10 years of teaching experience. The education level of the participants indicated that

74% hold a bachelor's degree, and 26% hold a master's degree. The average class size of the kindergarten classes in this school district is 18 to 24 students.

The demographic makeup of K-3 teachers in this southern state as reported by the State Department of Education was as follows: total K-12 teachers, 35,535; K-3 teachers, 9,731 (27%); female K-3 teachers, 9,350 (96%); male, 381 (4%); Caucasian, 7,641 (78%); African American, 2,043 (20%); Other, 47 (2%). The average years experience for K-3 teachers in the state is 13.4 years.

The demographic make-up of the 373 kindergarteners in the coastal district used for this research was as follows: free/reduced status, 170 (46%); not free/reduced status, 203 (54%); male, 175 (47%); female, 198 (53%); minority, 66 (18%); non-minority, 307 (82%); preschool attendance prior to kindergarten, 274, (73%); no preschool attendance prior to kindergarten, 99 (27%).

Data Analysis

This was a non-experimental, quantitative study examining whether there was a significant difference in the literacy and numeracy skills of students who attended a preschool program and the achievement levels of students who did not attend a program. The study used primary data collected through social skills inventories completed by kindergarten teachers from three elementary schools in a coastal district and archival data collected from the AIMSweb Progress Monitoring and Response to Intervention System. The district had a license to use the progress monitoring instrument, maintain scores and utilize data through Pearson Education Incorporated. Therefore, the data was derived from this source.

Independent t-tests were performed to find out if there were any pre-existing differences between the groups before conducting the Multivariate Analysis of Covariance (MANCOVA). The t-tests showed that the independent variables, ethnicity, free-reduced, and preschool attendance all had a significant effect on the dependent variables, literacy average and numeracy average. The independent variable, gender, showed no significant difference; therefore it was used as a covariate. Covariates are used in statistical tests to reduce error.

To test the difference between groups across several dependent variables simultaneously, MANCOVAs were conducted to determine the relationships between the dependent variables, early literacy and numeracy averages of kindergarteners, and the four independent variables, preschool attendance, gender, ethnicity, and socio-economic status. The independent variables were selected based on previous literature. MANCOVAs are often conducted for two main reasons: (a) they reduce the Type I error rate; and (b) the test shows how a combination of variables may have a significant effect on a dependent variable.

Finally, regression analyses were conducted to determine if a relationship existed between the social skills competence of a kindergarten student and his/her kindergarten achievement level. A social skills inventory consisting of 36 indicators was completed on each kindergarten student in the study. A total sum of "yes" indicators was given for each child. The regression analyses were used to determine the extent the independent variable, social skills competence, had on the dependent variables, literacy average and numeracy average.

Data Findings

Statistical significance for each independent variable was set at 0.05, and five independent sample t-tests were conducted. The t-tests were conducted to determine if pre-existing differences existed in the independent variables of gender, free-reduced status, ethnicity, and preschool attendance. Variables without pre-existing differences were used as covariates when the MANCOVA tests were conducted.

The *t* statistic for the independent variable, preschool attendance, indicated that preschool attendance had a significant effect on both the literacy average, $t(371) = -3.310$, $p = .001$, and the numeracy average, $t(371) = -2.042$, $p = .042$. The *t* statistic for the independent variable, gender, indicated that gender did not have a significant effect on the literacy average, $t(371) = -1.14$, $p = .255$ nor on the numeracy average, $t(371) = -.248$, $p = .805$ of kindergarteners. The *t* statistic for the independent variable, free/reduced status, indicated that free-reduced status had a significant effect on both the literacy average, $t(371) = 5.493$, $p < .001$, and the numeracy average, $t(371) = 5.471$, $p < .001$. The *t* statistic for the independent variable, ethnicity, indicated that ethnicity had a significant effect on both the literacy average, $t(371) = 2.961$, $p = .003$, and the numeracy average, $t(371) = 2.934$, $p = .004$.

All independent variables, preschool attendance, gender, free/reduced status, and ethnicity, were tested to determine their effects on kindergarten achievement. Free/reduced, ethnicity and preschool attendance all showed significant differences on the dependent variables. Gender showed no significance; therefore it was used as a covariate in the multivariate tests. The researcher also decided to use preschool attendance as a covariate since the significance of the numeracy score was approaching .05 and preschool was central to the study. Including preschool as a covariate provided

more conservative results. After controlling for gender and preschool attendance, Multivariate Analysis of Covariance (MANCOVA) tests were run to analyze the two dependent variables, literacy average and numeracy average, with the independent variables, free/reduced, ethnicity, and preschool attendance. Statistical significance for each independent variable was set at 0.05.

While controlling for gender, the MANCOVA revealed a significant multivariate main effect for preschool attendance, Wilks' $\Lambda = .951$, $F(4, 736) = 4.680$, $p = .001$. The Levene's Test of Equality of Error Variance indicated no significant differences; therefore the assumption of homogeneity of the dependent variables was not violated. The univariate tests of between-subjects effects revealed that preschool attendance had a significant effect on both the literacy average, $F(2, 369) = 7.520$, $p = .001$, and the numeracy average, $F(2, 369) = 6.125$, $p = .002$, of kindergarten students. Table 1 identifies post hoc tests were conducted to determine whether private or public preschool attendance had a greater significant difference. The post hoc test revealed no significant effect ($p = .112$) on the literacy average when comparing private preschool attendance to public preschool attendance but did reveal a significant effect ($p = .001$) when comparing private preschool attendance to no preschool attendance. The test did reveal a significant effect ($p = .014$) on the numeracy average when comparing private preschool attendance and public preschool attendance and a significant effect ($p = .024$) when comparing private preschool attendance to no preschool attendance. As shown in Table 1, the mean averages of kindergarten students who attended a private preschool was higher for both literacy (M=1.194) and numeracy (M=1.062) than for those kindergarten students who attended a public preschool or no preschool at all.

Table 1

Estimated Marginal Means (Preschool)

Dependent Variable	Independent Variables	Mean	Standard Error
Literacy Average	Private Preschool	1.194	0.025
	Public Preschool	1.075	0.052
	No Preschool	1.031	0.037
Numeracy Average	Private Preschool	1.062	0.016
	Public Preschool	0.955	0.034
	No Preschool	0.985	0.024

When controlling for preschool attendance, the MANCOVA revealed no significant main effect for gender, Wilks' $\Lambda = .969$, $F(2, 270) = 1.450$, $p = .236$. The Levene's Test of Equality of Error Variance indicated no significant differences; therefore the assumption of homogeneity of the dependent variables was not violated. Variability was equally distributed. Using gender as a covariate, the between-subjects effects revealed that preschool attendance has a significant effect on both the literacy average, $F(1, 271) = 4.191$, $p = .042$, and the numeracy average, $F(1, 271) = 8.607$, $p = .004$, of kindergarten students. It is interesting to see that although there are no significant differences based on gender, female students scored slightly higher in literacy than male students; whereas male students scored slightly higher in numeracy than female students (see Table 2).

Table 2

Estimated Marginal Means (Gender)

Dependent Variable	Independent Variables	Mean	Standard Error
Literacy Average	Male	1.147	0.033
	Female	1.195	0.031
Numeracy Average	Male	1.047	0.021
	Female	1.039	0.019

When controlling for gender and preschool attendance, the MANCOVA revealed a significant multivariate main effect for free/reduced status, Wilks' $\Lambda = .953$, $F(2, 269) = 6.590$, $p = .002$. The Levene's Test of Equality of Error Variance indicated no significant differences; therefore the assumption of homogeneity of the dependent variables was not violated. The univariate tests of between-subjects effects revealed that free/reduced status had a significant effect on both the literacy average, $F(1, 270) = 11.187$, $p = .001$, and the numeracy average, $F(1, 270) = 10.576$, $p = .001$, of kindergarten students. As shown in Table 3, the mean averages of kindergarten students identified as free/reduced who attended preschool was lower for both literacy (M=1.071) and numeracy (M=0.982) than for those kindergarten students not identified as free/reduced who attended preschool. These findings are supported by research in that

socioeconomic status can effect learning even when students are given opportunities to attend early intervention programs.

Table 3

Estimated Marginal Means (Free/Reduced)

Dependent Variable	Independent Variables	Mean	Standard Error
Literacy Average	Free/Reduced	1.071	0.038
	Not Free/Reduced	1.238	0.029
Numeracy Average	Free/Reduced	0.982	0.023
	Not Free/Reduced	1.082	0.018

Note. Free/Reduced denotes children whose families qualify under the Richard B. Russell National School Lunch Act.

When controlling for gender and preschool attendance, the MANCOVA revealed a significant multivariate main effect for ethnicity, Wilks' $\Lambda = .970$, $F(2, 269) = 4.100$, $p = .018$. The Levene's Test of Equality of Error Variance indicated no significant differences; therefore the assumption of homogeneity of the dependent variables was not violated. The univariate tests of between-subjects effects revealed that ethnicity had a significant effect on both the literacy average, $F(1, 270) = 5.991$, $p = .015$, and the numeracy average, $F(1, 270) = 7.454$, $p = .007$, of kindergarten students. As shown in Table 4, the mean averages of nonminority kindergarten students are higher in both

literacy (M=1.197) and numeracy (M=1.059) than the literacy and numeracy averages of minority kindergarten students.

Table 4

Estimated Marginal Means (Ethnicity)

Dependent Variable	Independent Variables	Mean	Standard Error
Literacy Average	Minority	1.048	0.056
	Nonminority	1.197	0.024
Numeracy Average	Minority	0.957	0.035
	Nonminority	1.059	0.015

Note. Nonminority denotes Caucasian; Minority denotes all other races.

Multiple regression analyses were conducted to determine the effect of social skills competence on academic achievement. Statistical significance for the independent variable, social skills competence, was set at 0.05. The first multiple regression analysis was conducted to determine if a relationship existed between social skills competence and the literacy average of kindergarten students. The ANOVA test indicated the regression statistically significant, $F(5, 367) = 21.544$, $p < .001$. The second multiple regression analysis was conducted to determine if a relationship existed between social skills competence and the numeracy average of kindergarten students. The ANOVA test indicated the regression was statistically significant, $F(5, 366) = 14.567$, $p < .001$.

As shown in Table 5, the independent variables, free-reduced status, ethnicity, preschool attendance, and social skills competence, all had a strong effect on the literacy average of kindergarten students. The *t* statistic for free-reduced status indicated a significant effect, $t(371) = -3.484$, $p = .001$. When determining the magnitude of the effect, free/reduced status had a moderate effect ($\beta = -.171$) on the literacy average of kindergarten students. The *t* statistic for ethnicity indicated a significant effect, $t(371) = -2.209$, $p = .043$. When determining magnitude of the effect using the β (-.096), ethnicity had a small effect on the literacy average of kindergarten students. The *t* statistic for gender did not indicate a significant effect, $t(371) = -.267$, $p = .790$. Gender had no effect ($\beta = -.012$) on the literacy average of kindergarten students. The *t* statistic for preschool attendance indicated a significant effect, $t(371) = 2.730$, $p = .007$. When determining the magnitude of the effect using the β (.129), preschool attendance had a moderate effect on the literacy average of kindergarten students. The *t* statistic for social skills competence, $t(371) = 7.845$, $p > .001$, revealed that social skills competence had the greatest impact ($\beta = .369$) on the literacy average of kindergarten students of all the independent variables included in this model.

Table 5

Coefficients for Literacy Average

Model	Variables	Unstandardized Coefficients *b*	Std. Error	Standardized Coefficients β	*t*	Sig.
1	(Constant)	0.476	0.095		5.002	0.000
	Free/Reduced	-0.128	0.037	-0.171	-3.484	0.001
	Ethnicity	-0.094	0.046	-0.096	-2.029	0.043
	Gender	-0.009	0.035	-0.012	-0.267	0.790
	Preschool	0.109	0.040	0.129	2.730	0.007
	Social Skills	0.020	0.003	0.369	7.845	0.000

As shown in Table 6, the independent variables, free-reduced status, ethnicity, preschool attendance, and social skills competence, all had a strong effect on the numeracy average of kindergarten students. The *t* statistic for free-reduced status indicated a significant effect, $t(371) = -3.781$, $p < 001$. When determining the magnitude of the effect ($\beta = -.193$), free/reduced status had a moderate effect on the numeracy average of kindergarten students. The *t* statistic for ethnicity indicated a significant effect, $t(371) = -2.092$, $p = .037$. When determining magnitude of the effect using the β (-.103), ethnicity had a moderate effect on the numeracy average of kindergarten students. The *t* statistic for gender did not indicate a significant effect, $t(371) = -1.083$, *p*

= .280. The *t* statistic for preschool attendance did not indicate a significant effect, *t*(371) = .1.023, *p* = .307, on the numeracy average of kindergarten students. The *t* statistic for social skills competence, *t*(271) = 6.086, *p* >.001, revealed that social skills competence had a significant and greatest impact (β = .298) on the numeracy average of kindergarten students of all the independent variables included in this model.

Table 6

Coefficients for Numeracy Average

		Unstandardized Coefficients		Standardized Coefficients		
Model	Variables	*B*	Std. Error	β	*t*	Sig.
1	(Constant)	0.729	0.065		11.249	0.000
	Free/Reduced	-0.093	0.024	-0.193	-3.781	0.000
	Ethnicity	-0.065	0.031	-0.103	-2.092	0.037
	Gender	-0.025	0.023	-0.052	-1.083	0.280
	Preschool	0.027	0.027	0.050	1.023	0.307
	Social Skills	0.011	0.002	0.298	6.086	0.000

Hypotheses Results

Hypothesis 1 was stated as follows: Kindergarten students who attended a public preschool program will score significantly higher than kindergarten students who attended a private preschool program on early literacy and numeracy skills as identified

on the AIMSweb Progress Monitoring and Response to Intervention System. This study did not find a significant difference between the literacy averages, (p = .112) of kindergarten students who attended a public preschool and the literacy averages of kindergarten students who attended a private preschool. However, the study did find a significant difference between the numeracy averages, (p = .014), of kindergarten students who attended a public preschool and the kindergarten students who attended a private preschool. Because the omnibus MANCOVA was significant and follow up analysis indicated that there was a difference in the numeracy averages but not in the literacy averages, hypothesis 1 was partially supported.

Hypothesis 2 was stated as follows: Kindergarten students who attended a preschool program will score significantly higher than kindergarten students who attended no preschool program on early literacy and numeracy skills as identified on the AIMSweb Progress Monitoring and Response to Intervention System. Preschool attendance did have a statistically significant, Wilks' $\Lambda = .951$, $F(4, 736) = 4.680$, $p = .001$, effect on kindergarten achievement. Furthermore, the F statistic for the literacy averages, $F(2, 369) = 7.520$, $p = .001$, and the F statistic for the numeracy averages, $F(2, 369) = 6.125$, $p = .002$, revealed that students who attended preschool before entering kindergarten scored significantly higher in literacy and numeracy averages than those who did not attend a preschool before entering kindergarten. Therefore, hypothesis 2 was supported.

Hypothesis 3 was stated as follows: Female kindergarten students who attended preschool will score significantly higher than male kindergarten students who attended preschool on early literacy and numeracy skills as identified on the AIMSweb Progress

Monitoring and Response to Intervention System. When controlling for preschool attendance, the statistical test did not indicate that gender had a significant effect on the literacy and numeracy averages, Wilks' Λ = .969, $F(2, 270) = 4.298$, $p = .236$, of kindergarten students. Therefore, hypothesis 3 was rejected.

Hypothesis 4 was stated as follows: Kindergarten students living above the poverty level who attended preschool will score as well or better than kindergarten students living below the poverty level who attended preschool on early literacy and numeracy skills as identified on the AIMSweb Progress Monitoring and Response to Intervention System. When controlling for gender and preschool attendance, the statistical test, Wilks' $\Lambda = .953$, $F(2, 269) = 6.590$, $p = .002$, revealed that students who attended preschool and did not qualify for free/reduced status scored significantly higher on literacy and numeracy averages in kindergarten than those students who attended preschool and qualified for free-reduced status. Therefore, hypothesis 4 was supported.

Hypothesis 5 was stated as follows: Non-minority students who attended preschool will score significantly higher than minority kindergarten students who attended preschool on early literacy and numeracy skills as identified on the AIMSweb Progress Monitoring and Response to Intervention System. When controlling for gender and preschool attendance, the statistical test, Wilks' $\Lambda = .970$, $F(2, 269) = 4.100$, $p = .018$, revealed that non-minority students scored significantly higher on literacy and numeracy averages in kindergarten than minority students. Therefore, hypothesis 5 was supported.

Hypothesis 6 was stated as follows: Kindergarten students who attended preschool who score higher in social skills competence as identified on the social skills

inventory will also score higher in academic skills as identified on the AIMSweb Progress Monitoring and Response to Intervention System. The study revealed the regression statistically significant with $F(5, 367) = 21.544$, $p < .001$, for the literacy averages of kindergarten students as well as significant with $F(5, 366) = 14.567$, $p < .001$, for the numeracy averages of kindergarten students. The regressions revealed that students who scored higher in social skills competence also scored higher on literacy and numeracy averages in kindergarten. Therefore, hypothesis 6 was supported.

Summary

This study investigated whether a relationship existed between early intervention and the achievement of kindergarten students in a coastal school district. Multivariate analysis of covariance tests were conducted to identify statistically significant relationships with the literacy and numeracy averages of kindergarten students and preschool attendance, gender, free/reduced status and ethnicity. Multiple regression analyses were conducted to determine if there was a statistical relationship between the social skills competence and the academic achievement of kindergarten students.

Consistent with previous literature, this study revealed through the MANCOVA tests that socioeconomic status has a statistically significant effect on a kindergarten achievement. The study also revealed a statistically significant relationship between kindergarten achievement and the ethnicity and preschool background of the student. In contrast to the literature which stated that gender and high-quality public preschools have an influence on the academic achievement of kindergarten students, the study did not reveal these variables to have a statistically significant relationship with kindergarten achievement.

Through the multiple regression analyses, the results for this study indicated that social skills competence had a statistically significant effect on kindergarten achievement. The regression analyses revealed a strong relationship in the academic achievement of students who possessed a larger number of social skill traits as opposed to those who did not possess many social skill traits. From these analyses, it was concluded that social skills competence had a statistically significant effect on kindergarten achievement.

CHAPTER V

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The primary purpose of this study was to determine if there were statistically significant relationships between preschool attendance, gender, ethnicity, and socio-economic status and the literacy and numeracy skills of kindergarten students as measured by the AIMSweb Progress Monitoring and Response to Intervention System. The study also determined if there was a statistically significant relationship between kindergarten achievement and the development of essential social skills. This chapter includes a summary of the procedures, discussion of the findings, conclusions, and future recommendations.

Summary of Procedures

The primary data for this study were obtained from 373 social skills inventories completed by kindergarten teachers in one school district in a coastal region. Nineteen teachers from three elementary schools participated in this study, which examined the statistical significance of early intervention on the cognitive and social development of kindergarten students as measured by AIMSweb Progress Monitoring and Response to Intervention System and the School-age Social and Emotional Adaptive Skills Inventory.

Multivariate analysis of covariance tests were used to determine whether relationships existed between the dependent variables, literacy average and numeracy average, and the independent variables, preschool attendance, gender, socio-economic status and ethnicity. Multiple regression analyses were conducted to determine whether

relationships existed between the dependent variables, literacy average, and numeracy average, and the independent variable, social skills competence.

Before the study began, the researcher was granted permission from the superintendent of the district involved in the study and The University of Southern Mississippi's Institutional Review Board (IRB) (see Appendix E). During the month of May 2010, the inventories were distributed to the participants. The participants completed a social skills inventory on each kindergarten student in their class during the 2009-2010 school year. Literacy and numeracy scores were obtained from AIMSweb Progress Monitoring and Response to Intervention System. Data were compiled and analyzed by the researcher. To protect the anonymity of the students in the study, the AIMSweb scores and the social skills inventories were coded with an identifying number by the assistant superintendent of the school district.

Summary of Findings

The relationships between different variables and kindergarten achievement were found to be consistent with previous studies in some areas, but not statistically significant in others. The area that had the greatest relationship with the literacy and numeracy achievement of kindergarten students that was also stated in the literature was the relationship between social skills competence and achievement. This study found that students who possessed a larger number of social and emotional adaptive skills also had higher averages in both literacy and numeracy. There is a significant relationship between social skills competence and kindergarten achievement. Research has shown that competent social skills during the kindergarten year have been associated with success in academic achievement. According to Logue (2007), schools can better support

academic achievement when giving children the opportunity to learn social skills in a variety of ways. Students who have been exposed to previous social experiences are able to master social skill competence easier. In contrast, students who have not had the opportunity to develop the necessary self regulation skills before they enter kindergarten, stand a higher chance of falling behind academically (Bodrova & Leong, 2005).

According to Marzano (2004), "Children who grow up with financial resources have many direct and indirect experiences that children who grow up in poverty do not have. By the time children of poverty enter school, they are at a significant disadvantage" (p. 11). Payne (1996) stated that children from poverty are coming to school without the concepts and strategies needed to become successful students. Consistent with the literature, this study also found a significant relationship between the literacy and numeracy achievement of kindergarten students who attended preschool and socio-economic status. Students who were identified as free/reduced did not score as well on the literacy and numeracy assessments as those students not identified as free/reduced.

According to Kagan (1990), kindergartens have become more rigorous and the expectations of these young children are rising. Early intervention has played a key role in offering the kind of experiences that are directly linked to academic achievement, higher graduation rates, and productivity in adult life (Frede & Barnett, 1992). It is important to educate the whole child. Preschools that focus on the cognitive, linguistic, and social-emotional competence of the child help build the skills needed to become active, lifelong learners (Bodrova & Leong, 2005). This study concurred with the literature. A significant relationship was found between the literacy and numeracy

averages of the kindergarten students and preschool attendance. Children who attended a preschool, both public and private, prior to kindergarten entry had higher scores in literacy and numeracy than those students who did not attend preschool.

This study also found a statistically significant relationship between the literacy and numeracy averages of kindergarten students who attended preschool and ethnicity. Nonminority students who attended preschool had higher scores in literacy and numeracy than minority students who attended preschool. According to Bracey (2000), a possible explanation for the differences in the achievement of minority children and their counterparts is that children of minority are less likely to be exposed to cultural events and experiences that typically becomes background knowledge. Background knowledge is essential to learning because students are able to make connections with knowledge that has already been learned and new information gained while in school. This study is consistent with the research.

Although researchers identified gender (Kommer, 2006; Maccoby & Jacklin, 1991; Ripley, 2005; Sax, 2001; Slavin, 1991b) as a variable that affects achievement levels, this study did not find significant relationships between achievement and gender. According to King and Gurian (2006), researchers have identified more than 100 structured differences between the male and female brain. In contrast, the study did not show significant differences based on gender. Interestingly, the study showed that the girls scored slightly higher in literacy than the boys and the boys scored slightly higher in numeracy than the girls. These results were not supported by the literature in that boys' brains seem to be dedicated more towards spatial-mechanical functioning whereas girls' brains seem to be dedicated more towards verbal communication (King & Gurian).

However, the statistical tests were not significant. Therefore, this study did not support previous findings reported in the literature.

No significant differences were found between students who attended a private preschool program and those who attended the public program piloted by the school district. This may be due to the fact that the public program catered to the low socio-economic students, and students who attended private programs were ranked higher economically. Students who attended private programs were most likely given enriching experiences outside of school which enabled them to attend preschool with stronger background knowledge. In addition, states have begun to develop early learning standards for all preschool programs. Private preschools have been adopting and following these standards more and more to ensure students are ready to enter kindergarten (Little et al., 2006).

Discussion

The current emphasis in schools today is on a rigorous curriculum, high stakes testing and the demands of NCLB. With these responsibilities in mind, school districts across the nation have been working diligently to develop innovative ways to improve student achievement. There have been movements in schools today to offer early intervention programs that have provided opportunities for young children to develop the skills and strategies necessary to achieve in school. Research supported the belief that children must be provided with early intervention programs that will give them the foundation that is critical to achieving in school. A child's cognitive development cannot wait until he or she falls behind. Rather, the commitment must be made in the prekindergarten years to offer a variety of effective learning opportunities (Ramey &

Ramey, 2004). "Early intervention must include an accumulation of strategies that enhance the development of oral language, deliberate memory, focused attention, and self-regulation" (Bodrova & Leong, 2005, p. 44).

Many of the findings in this study are consistent with previous research. The relationship between social skills competence and academic achievement is supported in the research of Ladd and Price (1987) who stated that children who feel secure in their surroundings are more likely to gain more from their educational experiences. Rushton and Larkin (2001) stated that all areas of a child's development are closely related. Development in one area influences and is influenced by the development in other areas. Children who attend high-quality preschool programs have been provided opportunities to interact, problem solve, and communicate appropriately with others. Interactions with others enhance a child's language development, cognitive functioning, emotional well-being, and social competence (Pianta & La Paro, 2003). With the opportunity for such interactions to take place at an early age, students more likely enter kindergarten ready to learn.

There is a direct link between poverty and ethnicity. Children who grow up without resources are less experienced and lack the background knowledge necessary to ensure success. According to the National Center for Educational Statistics (2005), African American students have the largest achievement gap in reading and math when compared to other ethnic groups. Latino students generally score between the African American and poverty students. Students from poverty backgrounds had the largest achievement gap in reading and math. It is important to note that many students who were classified as minority were also classified as free/reduced. The National

Association for the Education of Young Children (1995) reported that "the absence of basic health care and economic security places children at risk for academic failure before they enter school" (p. 1). As a result, NAEYC stated that there should be a commitment to promoting universal school readiness programs throughout the nation.

This study failed to show a statistically significant relationship between the academic achievements of students based on gender. Although the mean scores for females were slightly higher than those of males in literacy and slightly higher for males than females in numeracy, the differences were not significant enough to identify that gender made a difference. These results do not concur with the literature that states that boys and girls develop differently, especially in the early years of life. Girls usually acquire language and social skills sooner, while boys tend to be more active and are not as interested in reading and writing (Boyd, 2006). It is important to note that the students used for the analyses attended preschool. This may be why there were no significant differences based on gender. According to Boyd, students, both boys and girls, who attend a solid preschool program, are more likely to start kindergarten with the readiness skills and social competence necessary to achieve in school.

More and more teachers have been implementing differentiated instruction in their classrooms. The one-size-fits-all approach is not as prevalent today. Differentiated classrooms consists of varied learning opportunities with different degrees of difficulty, open-ended discussions and activities to meet individual learning styles, collaborative group work and varied assessments. In a differentiated classroom, boys and girls with different backgrounds, interests, readiness levels and learning styles are more likely to

feel emotionally stable and experience academic success (Tomlinson & Kalbfleisch, 1998).

Based on the results of this study, it is evident that preschool attendance does make a difference in the academic achievement of kindergarten students. Although socio- economic status and ethnicity has the ability to hinder a child's performance in school, providing opportunities to develop essential skills prior to school entry is crucial to success. This can best be accomplished by offering early intervention programs for all children. Schools must provide opportunities that support cognitive strategies, secure relationships, coping skills, goal-setting opportunities, and appropriate teaching in both content and discipline (Payne, 1996). The commitment to improving K-12 academic achievement must begin by providing children with a variety of effective learning experiences at an early age (Ramey & Ramey, 2004).

Limitations

There were several limitations associated with this study. First, the research was conducted within a single school district. The study was limited to this specific population and therefore, generalizations were restricted to populations with similar demographics and teacher characteristics. Next, the targeted school district is located in an extremely transient area. Families move in and out of the area quite often which results in students attending multiple schools within one school year. Inconsistent attendance could possibly skew the results of the study. Finally, the piloted preschool program was at no cost to the students' families, therefore targeting low income families. The public preschool program may have lacked the diversity of a typical population which could also skew the results of the study.

Recommendations for Policy or Practice

Preschool attendance was found to have a positive statistically significant relationship on the academic achievement of kindergarten students. Research has demonstrated the benefits of investing in high-quality early education programs. Unfortunately, not all families have the resources available to ensure their children attend high-quality preschool programs. For policy makers, this may indicate the need for the development of universal preschool programs not targeted just to the poor. Although these programs are an investment that many are unwilling to make, they have obvious advantages.

To maintain quality, more than 25 states have developed learning standards that outline the desired results, outcomes, and learning expectations for all children below kindergarten age (NAEYC, 2002). These standards are directly aligned with the K-12 education standards. Early childhood educators must promote these standards that benefit young children. To ensure the standards are used to promote positive educational and developmental outcomes, Kagan (1994) advocates that early childhood educators be trained in the implementation of the standards. Early preschool providers should collaborate with local school districts to align the curriculum. For policy makers, this could require that preschool programs employ highly educated, better prepared, and well paid teachers (Barnett & Belfield, 2006). This, in turn, produces higher gains in achievement and school success.

There was a negative relationship between the socio-economic status of kindergarten students and their academic achievement. This is an ongoing crisis that many educators across the nation have struggled with for years. There is a direct

relationship between students who lack resources and low achievement (Payne, 1996). Literature shows that children from disadvantaged homes are less educated. Many are being raised in undesirable communities and are more susceptible to family stress and criminal activity (Mayer, 1997). The NAEYC (1995) believes that it is society's responsibility to ensure all families have access to the services and support needed to offer enriching experiences and healthy relationships that provide children with a foundation for all future learning. With an increase in accountability in education and to achieve the goals of NCLB, there needs to be fundamental educational reform. The highest priority in education should be to establish a system of high-quality early care and education for children from all socio-economic groups (Sawhill, 2006). The challenge for lawmakers is to set high standards for program quality and effectiveness. This could require policy makers to reevaluate program standards and benchmarks.

Recommendations for Future Research

The purpose of this study was to determine if preschool education made a difference in the achievement of kindergarten students. Results showed overall that preschool attendance does make a difference. Relationships were also identified between kindergarten students who attended preschool and socioeconomic status, ethnicity and social skills competence. Further studies of various types are recommended for the purpose of expanding the knowledge base and identifying factors that contribute to student achievement. Based on this study, recommendations for future use are as follows:

1. This study should be replicated using kindergarten students from other regions of the state. This would allow researchers to compare the effect early intervention

has on kindergarten achievement in other demographic areas as well as provide a more generalized analysis of the results.

2. This study should be replicated using only free/reduced students who attended preschool to determine if preschool has a statistically significant effect on kindergarten achievement of students with common backgrounds.
3. This study should be replicated using kindergarten students in states that fund universal preschool programs. There has been a push for states throughout the nation to fund and support preschool education. Children from state funded preschool programs should be compared to children from programs not funded by the state to determine if the implementation of universal learning standards makes a difference in kindergarten achievement.
4. Research has shown that early intervention provides long-term cognitive and social benefits for children (Andrews & Slate, 2002). A follow-up longitudinal study should be implemented to determine if preschool attendance has an effect on the reading and math achievement as well as the social competence of students throughout their elementary school career.
5. With Response to Intervention in the forefront of education today, future studies should focus on identifying the factors that influence at-risk behaviors for students. The study should research a child's prior educational experiences when a need for remediation arises to determine if the child attended preschool before entering kindergarten.

Summary

The purpose of this study was to examine the relationship between early childhood education and the early literacy and numeracy skills of kindergarten students. The study also examined the relationship between the academic achievement and social skills development of kindergarteners. Research has, for years, linked early intervention with student achievement. Students coming from an appropriate, developmental preschool program are at an advantage and are readily able to face the rigor of elementary school (Campbell & Ramey, 1994).

The primary data for this study were obtained from 373 social skills inventories completed by kindergarten teachers in one school district in a coastal region. Nineteen teachers from three elementary schools participated in this study which examined the significance of early intervention on the cognitive and social development of kindergarten students as measured by AIMSweb Progress Monitoring and Response to Intervention System and the School-age Social and Emotional Adaptive Skills Inventory.

Multivariate analysis of covariance tests were used to determine whether relationships existed between the dependent variables, literacy average and numeracy average, and the independent variables, preschool attendance, gender, socio-economic status, and ethnicity. Multiple regression analyses were conducted to determine whether relationships existed between the dependent variables, literacy average and numeracy average, and the independent variable, social skills competence.

The area that this study identified as having the greatest relationship with kindergarten achievement was that of social skills competence. This finding was consistent with the research of Ladd and Price (1987) and Magnuson et al., (2007). This

study also identified preschool attendance, socioeconomic status and ethnicity as variables that affect kindergarten achievement. Preschool attendance had a statistically positive relationship with achievement while socioeconomic status and ethnicity had a statistically negative relationship with achievement. Students who attended preschool prior to kindergarten entry did better both academically and socially than those students who attended no preschool. However, the study did indicate that although the students attended preschool, those students who were classified as free/reduced and/or minority did not do as well academically as those students who attended preschool and were not classified as free/reduced and/or minority. From this study, it is evident that the environment a child is raised in before entering preschool can affect his of her ability to learn.

Although this study had some limitations, recommendations for policy makers were made which could include the development and support of preschool programs for all children as well as the implementation of universal learning standards aligned to the K-12 standards for all preschool programs. In addition, recommendations were made to require preschool programs to employ highly educated, better prepared, and well paid teachers. This would ensure that effective and highly-qualified teachers are working with children before they enter kindergarten. This also ensures an equal opportunity for all children.

Recommendations for future research included replicating this study to include kindergarten students from other regions of the state, using only free/reduced students who attended preschool, or using kindergarten students in states that fund universal preschool programs. Other recommendations included to conduct a follow-up

longitudinal study to determine if preschool attendance has an effect on the reading and math achievement as well as the social competence of students throughout their elementary school career and to research a child's prior educational experiences when a need for remediation arises throughout his or her elementary years to determine if the child attended preschool before entering kindergarten.

APPENDIX A

SCHOOL-AGE SOCIAL AND EMOTIONAL ADAPTIVE SKILLS

INVENTORY

School-Age Social and Emotional Adaptive Skills Checklist

Please check all statements that can be answered "yes" and complete the information at the bottom of the page.

Social Behavioral Skills

- o Student is able to ask for what he/she needs and wants from caregivers.
- o Student is able to follow directions and general expectations of caregivers.
- o Student has good contact with peers.
- o Student is able to express feelings appropriately to peers.
- o Student is able to share and interact cooperatively with peers.
- o Student is able to start conversations with peers.
- o Student is able to listen to peers.
- o Student is able to ignore peers when he/she should.
- o Student is not passive with peers.
- o Student is not aggressive with peers.

Social and General Problem-Solving Skills

- o Student thinks about what he/she is doing.
- o Student understands the consequences of behavior.
- o Student behavior is goal-oriented.
- o Student is aware when he/she is having a problem.
- o Student learns from past mistakes and does not repeat them.
- o Student uses good strategies to solve problems.
- o Student knows when he/she is having a social problem.
- o Student is knowledgeable of how he/she affects others.
- o Student uses appropriate strategies to solve interpersonal difficulties.
- o Student uses non-aggressive solutions to solve disagreements with others.

Ability to Cope with Anger

- o Student is aware when he/she is getting angry or frustrated.
- o Student responds to anger with appropriate coping skills (uses coping skills).
- o Student keeps anger under-control (does not blow-up or have melt downs).
- o Student can handle minor frustrations without adult intervention.
- o Student is happy most days.

Ability to Engage in Self-Directed Academic Behaviors

- o Student is able to organize school materials.
- o Student effectively uses his/her time.
- o Student is usually on task and completes tasks.
- o Student has good study skills/habits.

Emotional Well-Being and Level of Self-Esteem

- o Student acknowledges his/her own feelings.
- o Student expresses feelings appropriately.
- o Student is able to tell others about his/her concerns/troubles.
- o Student thinks and verbalizes positive thoughts about self and others.
- o Student seems to like him/herself (can identify positive qualities).
- o Student focuses on positive things and manages negative things.
- o Student is able to take responsibility for achievements and mistakes.

Child's Name: _____ **Number** _____

Teacher's Name/School: _____ **Teacher Number** _____

Circle preschool attendance: **(private)** **(Ocean Springs' pilot program)** **(no preschool attended)**

Date: _____ **Gender** _____

APPENDIX B

SUPERINTENDENTS' PERMISSION TO SURVEY LETTER

AND CONSENT FORM

1748 Plumaria Drive
Gautier, MS 19553
March 5, 2010

Dr. Robert E. Hirsch, Superintendent
Ocean Springs School District
P.O. Box 7002
Ocean Springs, MS 39566-7002

Dear Dr. Hirsch:

I am Jennifer Pope, a doctoral candidate at the University of Southern Mississippi. I am conducting research on the effects of preschool programs on kindergarten achievement. I would like your written permission to collect archival data from the AIMSweb Progress Monitoring System throughout the district as well to ask the kindergarten teachers in the district to complete a *School-age Social & Emotional Adaptive Skills Inventory* on each kindergarten student. This project will be reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-6820.

With your permission, the AIMSweb data will be collected from Oak Park Elementary, Pecan Park Elementary, and Magnolia Park Elementary. Administrators at each school will gather the early literacy and early numeracy reports from AIMSweb Progress Monitoring and Response to Intervention System. The *School-age Social & Emotional Adaptive Skills Inventory* will be distributed to the kindergarten teachers by the Assistant Superintendent with written instructions. The checklist should take no more than 5 minutes per student to complete. A copy of the checklist and instructions are attached for your reference.

If you consent to have the listed elementary schools participate in this research, please sign and date the enclosed consent form and return it in the self-addressed stamped envelope.

Thank you in advance for your consideration. If you have any questions, you can contact me at jpope@ossdms.org or 228-875-5847.

Sincerely,

Jennifer F. Pope

Jennifer F. Pope, Ed.S.
Doctoral Candidate
The University of Southern Mississippi

Consent to Participate in the Completion of the

School-age Social & Emotional Adaptive Skills Inventory

As superintendent of Ocean Springs School District, I give Jennifer Pope permission to conduct educational research at the following schools: Oak Park Elementary, Pecan Park Elementary, and Magnolia Park Elementary. This research will be conducted on the effects of preschool programs on kindergarten achievement. Permission is granted to gather archival data from the AIMSweb Progress Monitoring and Response to Intervention System and to ask the kindergarten teachers in each school to complete a *School-age Social & Emotional Adaptive Skill Inventory* on each kindergarten student. I understand that the data gathered will be used to determine preschool effectiveness, and confidentiality will be maintained. No individual student or teacher name will be identified on any of the reports. The only identifying marks on the AIMSweb reports and social skills checklist are a code that identifies the preschool history, gender, ethnicity and socio-economic status of the child. The school district's name will not be revealed in the final dissertation. The district will be referred to as a district along the Mississippi Gulf Coast.

Robert E. Hugh
Superintendent's Signature

3/9/10
Date

APPENDIX C

TEACHERS' SURVEY INSTRUCTIONS

Inventory Instructions

Teachers,

You are being asked to participate in a research study on the effects of early intervention on the cognitive and social development of kindergarteners. This research is being conducted to gain important information about the preschool program piloted in your district. Your participation in this study will be used to improve the programs in the district.

In order to collect data on the social skills competence of kindergarteners, you are being invited to complete a social skills inventory on each kindergarten student in your class. The inventory, along with data collected from the AIMSweb Progress Monitoring and Response to Intervention System, will be analyzed to determine preschool effectiveness. This project has been reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-6820.

Your participation in this study is important to the overall outcome of the study. The Assistant Superintendent will be coding all information to ensure confidentiality. No individual student or teacher will be identified on any of the reports.

This is a general inventory of social and emotional skills that are developmentally appropriate for kindergarten students. Please complete an inventory for each kindergarten student in your class. Check all statements that can be answered "yes" for each child and complete the information at the bottom of each inventory. It should take approximately 5-10 minutes to complete each inventory. Your participation is voluntary, and you can withdraw at any time. Parents will be informed, in advance, that they will be receiving, along with the report card, a copy of a social skills inventory conducted by their child's teacher. If you have any questions, you can contact Jennifer Pope at 228-217-5133. Your participation in this study is greatly appreciated!

APPENDIX D

PERMISSION TO USE SOCIAL SKILLS INVENTORY

OP - Pope, Jennifer

From: Jan Abendroth [jabendroth@orchardplace.org]
Sent: Monday, November 16, 2009 10:45 AM
To: OP - Pope, Jennifer
Subject: Social & Emotional Adaptive Skills Checklist

Jennifer,

I was right. This was generated in our Early Childhood Program in conjunction with Child Care Resource & Referral. Apparently they also have one for little ones. One of our former therapists put this together with the coordinator of Child Care Resource & Referral and it is not copyrighted. I learned something, too! Apparently physicians have called and asked if they could use it as well so I guess Kelley Gallagher did a good job with it! Feel free to use it as you wish. Good luck!

Jan

Jan Abendroth, QCSW, LISW
School-Based Mental Health Supervisor
Orchard Place - Child Guidance Center
808 - 5th Avenue
Des Moines, IA 50309

515/244-2267

APPENDIX E

INSTITUTIONAL REVIEW BOARD APPROVAL LETTER

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board

118 College Drive #5147
Hattiesburg, MS 39406-0001
Tel: 601.266.6820
Fax: 601.266.5509
www.usm.edu/irb

HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE
NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **10042002**
PROJECT TITLE: **The Effects of Early Intervention on the Cognitive and Social Development of Kindergarteners**
PROPOSED PROJECT DATES: **08/06/2009 to 12/31/2010**
PROJECT TYPE: **Dissertation or Thesis**
PRINCIPAL INVESTIGATORS: **Jennifer Foster Pope**
COLLEGE/DIVISION: **College of Education & Pyschology**
DEPARTMENT: **Educational Leadership & School Counseling**
FUNDING AGENCY: **N/A**
HSPRC COMMITTEE ACTION: **Expedited Review Approval**
PERIOD OF APPROVAL: **04/29/2010 to 04/28/2011**

Lawrence A. Hosman
Lawrence A. Hosman, Ph.D.
HSPRC Chair

4-30-2010
Date

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